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BRITISH MUSEUM
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NATURAL HISTORY.

PROCEEDINGS

OF THE

Bournemouth Natural Science Society.

VOL. XVII.

SESSION, 1924-25.

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Bournemouth Natural Science Society.

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BRITISH MUSEUM
NATURAL HISTORY

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Introductory Note.

THE Bournemouth Natural Science Society was founded in 1903, being the successor to an older society which was formed in 1883 and dissolved in 1897. The early meetings of the Society were held in a room hired from time to time for the purpose, but the need of some fixed quarters was soon felt. To meet this need a small room was taken at 122, Old Christchurch Road, and, as this proved inadequate, in February, 1909, better accommodation was secured at Granville Chambers and retained for four years. In March, 1913, the Society took on lease from the Education Committee a large room on the ground floor of the Municipal College. In 1919 this also had to be given up, and the Society succeeded in acquiring a house of its own, 39, Christchurch Road. The formal opening was on February 7, 1920. It is hoped that the possession of this freehold house will enable the Society to offer its members many new advantages and to extend its activities in such directions as may seem advisable.

The objects of the Society are declared by the second of its rules to be " the promotion of the study of Science in all its branches, by means of Lectures, Field Meetings, the Reading and Discussion of Papers, and the formation of Sections of its members devoted to any particular branch of the Society's work, and in any way that the Council of the Society shall deem advisable."

The Sections at present working are as follows:—**Archæological and Historical, Astronomical, Botanical, Entomological, Geographical, Geological, Mathematical, Microscopical, Photographic and Record, Physical, and Zoological.**

During the WINTER SESSION, from October to April, GENERAL and SECTIONAL MEETINGS are held. TWO GENERAL MEETINGS are usually held in each month, comprising Lectures and Demonstrations on various subjects of scientific interest, illustrated by lantern slides, diagrams, specimens or experiments.

SECTIONAL MEETINGS.—Each Section usually holds a meeting once a month. At these meetings which, equally with the General Meetings, are open to all members of the Society, the papers read are more specialised and technical.

Throughout the SUMMER SESSION, EXCURSIONS to places of interest in the neighbourhood are arranged and indoor or garden meetings occasionally held.

The management of the Society is vested in a Council, which is elected at the Annual General Meeting, held in October.

The Society possesses a Library available for the use of members. This is yearly becoming more extensive and valuable by the acquisition of standard text books and of books dealing with matters of local scientific interest. Books may, under certain conditions, be borrowed by members and there is a Reading Room in which works of reference may be consulted.

The Society's collections of archæological, botanical, geological, zoological and other specimens are now arranged in the MUSEUM. Articles on the collections were contributed to Vol. V. and Vol. X. by Sir Daniel Morris and Mr. W. G. Wallace respectively.

Members are elected by the Council and pay an annual subscription of £1 for full membership (admitting to all meetings and excursions for the year), a subscription of £2 covers four adult members of the same family residing in the same house.

A MONTHLY NOTICE, giving full details of all meetings, etc., is posted to every member before the beginning of each month, and a volume of Proceedings is published every year.

Application Forms for Membership, and further particulars, can be obtained from the

HON. SECRETARY,

Bournemouth Natural Science Society.
39, Christchurch Road,
Bournemouth.

Bournemouth Natural Science Society.

OFFICERS AND COUNCIL FOR 1924-25.

President

Hubert Painter, B.Sc., F.C.S.

Vice-Presidents

Henry Backhouse, F.R.H.S.
G. E. J. Crallan, M.A., M.B., M.R.C.S.
Rev. E. F. Linton, M.A., F.L.S.
Claude Lyon
Dr. F. G. Penrose, F.R.C.P., F.Z.S., M.B.O.U.
R. V. Sherring, F.L.S.
Sir Daniel Morris, K.C.M.G., J.P., M.A., D.SC., D.C.L., LL.D., F.L.S.

Chairman of Council

J. H. Ralph Smythe, J.P.

Deputy-Chairman of Council

Rev. C. O. S. Hatton, B.A., F.L.S.

Council

The Officers and Chairmen of Sections (ex-officio)
Henry Backhouse, F.R.H.S.
Mrs. Curme
Henry J. Ellis
J. M. French
Miss S. G. Rooke
J. H. Scott, M.E., M.I.M.C.E.
R. V. Sherring, F.L.S.
Rev. E. J. Douglas Simpson, M.A.
J. H. Ralph Smythe, J.P.
J. F. Spencer
W. J. Woodhouse

Chairmen of Sections

Archæological and Historical: Col. J. R. Dodd, M.D., F.R.C.S.
Astronomical and Mathematical: B. M. Peek, M.A., F.R.A.S.
Botanical: Howard Lacey, B.A.
Entomological: Joseph Neale, B.A.
Geographical: Claude Lyon.
Geological: Henry Bury, M.A., F.L.S., F.G.S.
Microscopical: F. B. Taylor, B.A.
Photographical and Record: W. Dieselhorst, A.M.I.C.E.
Physical: Hubert Painter, B.SC., F.C.S.
Zoological: F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U

Hon. Treasurer

G. Brumell, A.R.I.B.A., Maori, 15, Richmond Park Avenue.

Secretaries

Hon. Secretary: R. A. de Paiva, San Remo, 13, Carysfort Road, to whom all official correspondence should be addressed.
Hon. Assistant Secretary: W. J. Woodhouse, A.C.P., M.I.H., 35, Chatsworth Road.
Assistant Secretary: J. F. Spencer, Glenthorne, Richmond Park Road.

Hon. Librarian

Claude Lyon, Carbery Wood, Southbourne.
Hon. Assistant Librarian : Miss A. G. Veale, 2, Richmond Park Crescent.

Hon. Editor

J. R. White, M.A., Whitecot, Linwood Road.

Hon. Curator

Rev C. O. S. Hatton, B.A., F.L.S., Hinton Vicarage, Christchurch.

Hon. Auditors

E. Bicker. C. H. Blackett.

Bankers

National Provincial Bank of England, Bournemouth.

List of Members.

Revised to 1st November, 1925.

* Honorary Members. † Past Presidents. o Original Members.
G Morris Gold Medalist, A Associate Members.
Members elected since August 1st in Italics.
The year of election is given before the name of each member.

A

1925	Adams, Miss S.	Loughton Hurst, West Cliff Gardens
1905	Alder, Mrs.	East Grove, Lymington
1920	Alexander, J. A., F.R.G.S., F.R.S. (Edin.)	Waverley, Rossmore Avenue, Parkstone
1924	Amos, Miss E.	Langley Dene, 55, Wellington Road
1920	Anderson, Col. E. B., C.B.E.	Woodmanton, 35, Wellington Road
1922	Anderson, Col. R. F.	Glenalmond, 5, Madeira Road
1923	Anderson, Mrs.	,, ,, ,,
1923	Anderson, Mrs. M.	Ranfurly, 18, Dean Park Road
1914	Andrews, W.	Connaught Grange, 81, Alumhurst Road
1905	Archer, J. W.	Windlesham, 5, Braidley Road
1905	Archer, Mrs.	,, ,,
1911	Atkins, Mrs.	10, Fortescue Road
1924	Attwell, A. F., M.P.S.	17, Hamilton Road, Boscombe
1924	Austen, L. G.	Insch, 4, Cromer Road

B

1906	Backhouse, H., F.R.H.S.	Yelland, 23, McKinley Road
1903o	Banks, R. Y.	12, Portchester Road
1922	Barker, S.	66, West Cliff Road
1921	Barker, Miss W.	,, ,,
1924	Barker, S.	18, St. Winifred's Road
1924	Barker, Mrs. M. M.	,, ,,
1905	Barlow, E. W., B.SC., F.R.A.S., F.R. MET. S.	Greengates, Wadhurst, Sussex
1912	ABarraclough, A., M.A., F.R.G.S.	173, Richmond Park Road
1909	Barratt, J. Hayes	Brundon, 2, Surrey Road
1924	Barratt, Mrs.	,, ,,
1924	Barratt, Miss P. M.	,, ,,
1905	Bartlett, H. F. D., F.E.S.	Island of St. Helena, South Atlantic
1920	Bartlett, P. R.	35, King's Park Road
1914	Bartlett, T. O.	Lamorna, Dunkeld Road
1925	*Beale, Mrs. J. B.*	Deep Dale, 41, Surrey Road
1918	ABeaumont, Miss E. J.	12, Sunnyhill Road, W. Southbourne
1925	*Beausire, Miss E.*	Highfield, 43, Hawkwood Road, Boscombe
1923	Bell, Major J. G.	Ivanhoe, Sandringham Road, Parkstone
1923	Benest, Mrs. A. S.	Tijuca, 54, Wellington Road
1920	Bennett, Risdon, M.A.	Yew Cottage, Broadstone
1904	Bennett, H. Morden	Sweet Briar, 12, Derby Road
1921	Bevan, F. M.	17, Stirling Road
1923	Bidwell, Miss A. E.	10, Granville Road, Boscombe
1913	Bilton, Miss C. E.	Dilkhush, 25, Parkwood Road, Boscombe
1923	Bishop, E.	21, Surrey Road
1912	Blackall, Miss E. E.	10, Harcourt Road, Boscombe Park
1908	Blackett, C. H.	Rosapenna, 16, McKinley Road
1921	Blackett, Miss H. M.	,, ,,

1910	*Bond, F. Bligh, F.R.I.B.A.	454, Gloucester Road, Bristol
1920	Borrett, Surgeon Capt., G. G., R.N.	62, Alum Chine Road
1924	Borrett, Mrs.	,, ,,
1924	Borrett, Miss J.	,, ,,
1925	Borrow, Frederick	The Knoll, Charminster Road
1925	Borrow, Mrs.	,, ,,
1924	Bottomley, Miss O.	Langley Dene, 55, Wellington Road
1925	A*Bourne, Miss A. E.*	6, Percy Road, Boscombe
1920	ABourne, Miss C.	Moray House, 6, Percy Road, Boscombe
1914	Bradbury, Miss	La Bocca, 2, Portarlington Road
1914	Bradbury, Miss A.	,, ,,
1914	Bradbury, Miss E.	,, ,,
1925	Bradley, F. L.	Holmwood, 12, Chine Crescent Road
1924	Bragg, Miss H. B.	4, Chester Road
1924	Bragg, Miss R.	,, ,,
1924	Bragg, Miss S. B.	,, ,,
1908	Brazier, J. J.	Fairlawn, 48, Lowther Road
1922	Brewitt-Taylor, Mrs. Ray	Branksome Lodge, 6, Forest Road, Branksome Park
1921	Bromley, Miss	81, Lansdowne Road
1917	Brown, Edward	West Ridge, Chessel Avenue
1917	Brown, Mrs.	,, ,,
1921	Brown, Miss B. L.	Kismet, Keswick Road, Boscombe
1924	Brown, Miss F.	Chobham House, 4, St. Winifred's Road
1924	Brown, Miss E.	,, ,, ,,
1924	Brown, Miss E. S.	,, ,, ,,
1923	Browne, John	Serantes, Glen Road, Boscombe
1924	Browning, Miss E. M.	Littleholm, Ferndown
1905	Brumell, G., A.R.I.B.A.	Maori, 15, Richmond Park Avenue
1920	Brumell, Mrs.	,, ,, ,,
1923	Brumell, F.	,, ,, ,,
1920	Brumell, Miss M.	,, ,, ,,
1920	Bryant, Miss M.	Sunnyhill, Hampden Lane, W. Southbourne
1907	Bulfin, Ignatius, B.A.	The Den, 26, Knole Road
1908	Bulfin, Mrs.	,, ,,
1924	Burgess, J.	Kempston, Crescent Road
1924	Burroughs, F. G.	63, Maxwell Road
1924	Burroughs, J. H., J.P.	Moor End, 11, Bodorgan Road
1924	Burroughs, Mrs.	,, ,,
1924	Burroughs, Miss J.	,, ,,
1919	Burstal, E., M.D.	46, Lansdowne Road
1922	Burton, E. St. John, F.Z.S., F.G.S.	Melville, 4, Howard Road
1922	Bury, Henry, M.A., F.L.S., F.G.S.	The Gate House, 17, Alumdale Road
1924	Bury, Mrs.	,, ,, ,,
1924	Bury, Miss G. E.	,, ,, ,,
1924	Bury, Miss H. S.	,, ,, ,,
1922	Byrde, R. W.	Bracken House, 1, Bracken Road, West Southbourne
1923	Byrde, Mrs.	,, ,, ,,

C

1910	Cameron, Miss	Little Forest House, 19, Bath Road
1924	Campbell, Miss A. H.	Dane Court, Parkstone
1924	Campbell, Mrs.	Pinehurst, Broadstone
1924	Cardell, G., L.D.S.	Exeter House, The Square
1919	Cardew, R. K., B.A.	Stafford Lodge, 26, Dean Park Road
1920	Cardew, Mrs.	,, ,, ,,

1922	Carter, Roderick Edmond	Lawnswood, 12, Beechey Road
1922	Carter, Mrs.	,, ,,
1912	Carus-Wilson, C., F.R.S., Edin., F.G.S.	Altmore, Waldegrave Park, Strawberry Hill, Middlesex, and Royal Societies' Club, S.W.
1923	Castle, Capt. R. A. E.	Castlemount, Glenair Road, Parkstone
1923	Castle, Mrs.	,, ,, ,, ,,
1923	Castle, Miss J. L.	,, ,, ,, ,,
1922	Caudwell, W., F.R.C.V.S.	St. Gratien, 70, Lowther Road
1923	Caudwell, Mrs.	,, ,,
1909	Chandler, S. Whitty, B.A., J.P.	St. George's, 4, Cecil Road, Boscombe
1925	*Chilver, Mrs. E. K.*	2, Shaftesbury Road
1912	AChilver, Miss K. M.	,, ,,
1922	Claridge, J. E. W., LL.C.M.	Leigh House, Wimborne
1911	Clark, Walter Child	Michelgrove House, Boscombe
1920	Clarke, Miss E.	25, Florence Road, Boscombe
1908	Coddington, E. F.	34, Irving Road
1921	Colborne, E. A.	11, Cambridge Road
1918	Colebrook, H. W. V.	Lynton, 64, Lowther Road
1911	Collins, W. F.	Vellore, Overcliff Drive
1923	Cooke, H. H.	Maycroft, 7, Beresford Road, W. Southbourne
1912	Cooper, Ernest	100, Old Christchurch Road
1909	Cooper, J. Omer, F.E.S.	Zoological Laboratory, New Museums, Cambridge
1903	Cooper, Rev. W. H. Windle, M.A., F.R.G.S., F.R.H.S.	Owthorpe, 21, Branksome Wood Road
1925	Corban, Miss E. M.	Calcote House, 6, Sandecotes Road, Parkstone
1916	Cowell, G. E.	Hawthorns Hotel, West Cliff Road
1903†	oCrallan, G. E. J., M.A., M.B., M.R.C.S.	St. Cross, 13, Bodorgan Road
1922	Crallan, Mrs.	,, ,,
1920	Cressy, Miss H.	Bramcote, 1, Glen Road, Boscombe
1922	Crowther, Miss V.	Berwyn Bank, Poulner Hill, Ringwood
1924	Cunningham, W. D.	47, Southern Road
1913	Curme, Surg. Lt.-Col., D.	New Bohemia, 1, Nelson Road
1913	Curme, Mrs.	,, ,,
1922	Curme, Miss E. M.	,, ,,
1903	oCurtis, W. Parkinson, F.E.S.	Drake North, Sandringham Road, Parkstone
1922	*Elected an Honorary member	

D

1922	Dalton, Mrs. E.	Lindum Lodge, 10, Milton Road
1920	Darke, Miss W. E.	25, Hawkwood Road, Boscombe
1922	Davey, J. Hingston	10, Studland Road
1921	ADavies, Miss H. V., B.SC.	Municipal College
1919	Davison, Miss L.	15, Dean Park Road
1925	Daw, Miss A. E.	Woodside, 16, St. Alban's Crescent
1924	Dawson, Miss A. M.	6, Cavendish Place
1924	Dawson, Miss F.	,, ,,
1924	Deas, J., M.A., I.C.S.	57, Wellington Road
1910	de Castro, Mrs.	Sunnydene, 76, Drummond Road
1922	Ade Lunat, Mdlle. E.	Granville Chambers, Yelverton Road
1918	Dence, Miss F. M.	Birk House, Wollstonecraft Road
1905	De Paiva, R. A.	San Remo, 13, Carysfort Road, Boscombe
1925	Dicker, C. G. H., M.A.	13, King's Park Road
1925	Dicker, Miss E. H.	,, ,,
1925	Dicker, Miss M. H.	,, ,,

1914	Dickson, Col. W. D., J.P.	Southill, 32, Dean Park Road
1914	Dickson, Mrs.	,, ,,
1919	Dieselhorst, W., A.M.I.C.E.	50, Surrey Road
1924	Dieselhorst, Mrs.	,, ,,
1903o	*Dixon, J. R. L., M.R.C.S., L.R.C.P.	
1920	Dodd, Col. J. R., M.D., F.R.C.S.	140, Richmond Park Road
1921	Dodd, Mrs.	,, ,,
1921	Dodd, T. A.	,, ,,
1910	Dodshon, E., LL.B.	Lloyds Bank Chambers
1923	Druitt, Alan	Willow Lodge, Mudeford, Christchurch
1923	Druitt, Mrs.	,, ,, ,, ,,
1904	Druitt, J., J.P.	Avebury, 10, Madeira Road
1925	*Druitt, Miss C. M.*	,, ,, ,,
1925	*Druitt, Miss C. S.*	,, ,, ,,
1922	Duncan, H. J.	The Mount, 17, Branksome Wood Road
1922	Duncan, Mrs.	,, ,, ,, ,,
1921	Dunn-Gardner, R. C.	15, Queensbury Place, S. Kensington, S.W. 7
1924	ADyer, Miss G. B.	Victoria Home School, 37, Burnaby Road

E

1925	*Edwards, A. D.,* M.B., B.S., B.SC., D.P.H.	11, Hawkwood Road, Boscombe
1924	Edwards, Miss M. J.	Aysgarth, 16, Poole Road
1923	Ellen, Miss D. M.	Staunton, Exeter Park
1925	Elliott, Miss E. M.	Drinagh, 24, Surrey Road South
1922	Ellis, H., F.R.A.S.	Branksome Lodge, 6, Forest Road, Branksome Park
1922	Ellis, Mrs.	,, ,, ,, ,,
1922	Ellis, Miss W. M.	,, ,, ,, ,,
1913	Ellis, H. J.	Chesterford, 86, Richmond Park Avenue
1920	Ellis, J. C.	Whyte Gables, Highcliffe, Christchurch
1923	Elrington, R.	Mavis Bank, 15, Bodorgan Road
1923	Elrington, Mrs.	,, ,,
1922	Elwes, Lt.-Col. L. C., D.S.O.	Burnt Hill, Broadstone, Dorset
1922	Elwes, Mrs.	,, ,,
1924	Ensor, Major F. W., M.A., B.C.L.	26, Frederica Road, Winton
1924	Ensor, Mrs.	,, ,,
1909	Evans, P. H. L., M.A.	Stirling House, 28, Manor Road

F

1924	Faber, W., F.Z.S.	Midwood, 64, Christchurch Road
1920	Fairbrother, Miss L.	Knole Hall High School for Girls, Knyveton Road
1921	Fane, F. L.	13, Littledown Road
1925	Farie, Miss C. M.	Streate Place, St. Peter's Road
1921	Farmar, Miss D. A.	Dorset Lodge, 10, Suffolk Road
1919	Farmar, Mrs. K. A.	Whitton Lodge, Stevenson Crescent, Parkstone
1922	Farmar, Miss E. A.	,, ,, ,, ,,
1914	Fielding, T., M.D.	Genesta, West Hill Road
1903o	AFirbank, Miss, LL.A., A.C.P.	5, Buchanan Avenue
1924	Fison, Mrs. E.	Nelson Villa, West Hill Road
1922	Fonblanque, Miss Ida	4. Gordon Road
1917	Forrest, Mrs.	Hillsborough, 36, Westbourne Park Road

1925	Fountain, E. D., L.R.C.P., M.R.C.S.	Vron, 30, Mansfield Road, Parkstone
1925	Fountain, Mrs.	,, ,, ,, ,,
1922	Fowler, A. R. W., B.A.	St. Ina, Beechwood Avenue
1922	Fowler, Mrs.	,, ,, ,,
1919	Fowler, Miss M.	Lerryn, Chessel Avenue
1925	Fowler, Miss R.	,, ,,
1910	Frean, Mrs.	Cranicombe, Branksome Avenue
1915	Frean, Miss E.	,, ,,
1924	Freer, Miss L. W.	9, Cambridge Road
1909	French, J. M.	Jumpers House, Christchurch
1923	Fryer, Miss C. H.	Moulton, 46, Wellington Road

G

1922	Gardiner, Miss F. M.	3, Adeline Road, Boscombe
1921	Gardner, Eric, M.D., F.S.A.	Portmore House, Weybridge, Surrey
1917	Garnett, H. A.	18, Campbell Road, Boscombe
1917	Garnett, Mrs.	,, ,,
1922	Gatty, Lady K.	Ossemsley Manor, Christchurch
1922	Gatty, Miss H.	,, ,,
1922	Gatty, Oliver	,, ,,
1922	Gatty, Richard	,, ,,
1921	Geoghegan, Mrs.	25, Wimborne Road
1924	George, Miss M.	3, Balmoral, West Hill Road
1923	Gepp, Rev. E.	163, Southcote Road
1923	Gibbs, F. L. A.	Hawthorns Hotel, West Cliff Road
1921	Gibbs, G. F.	Fairview, 13, Herbert Road
1914	Gill, Edwin R., A.R.C.A.	Rosslyn, Seldown, Poole
1925	*Gill, Miss Ida*	,, ,,
1922	Gill, Major W. R.	Priory Dene, 33, West Cliff Road
1923	Gill, Mrs.	,, ,, ,,
1924	Goddard, Rev. C. V.	62, Parkwood Road, Boscombe
1925	Godman, G. W.	Beech House, Bransgore, Christchurch
1925	Goodacre, Rev. C. B.	3, Cecil Road, Boscombe
1924	Goodchild, Miss H. R.	Pentre, 10, Parkwood Road, Boscombe
1924	Goode, Mrs.	50, Surrey Road
1921	Gosse, W., M.D., D.P.H.	Hope Lodge, Belle Vue Road, Parkstone
1904	Gray, Arthur	Woodville, 26, Melville Road, Winton
1911	Gray, Mrs.	Darena, 15, Wellington Road
1924	Green, Miss J. E.	58, St. Alban's Avenue
1921	Greg, Mrs.	Fuji Yama, 9, Hengist Road
1925	Gregson, Rev. C.	Burdon Lodge, 54, West Cliff Road
1925	Gregson, Mrs.	,, ,, ,, ,,
1925	Gregson, Miss	,, ,, ,, ,,
1914	Greves, E. Hyla, M.D., F.R.C.P.	Rodney House, 19, Poole Road
1914	Greves, Stanley S. Hyla	,, ,,
1917	Griffiths, Capt. David	Bakrota, 82, Belle Vue Road, Southbourne
1917	Grindley, Miss E. J.	Milnthorpe, Rossmore Avenue, Parkstone

H

1923	Haigh, A. E.	Exhall, 20, Christchurch Road
1919	Hall, J. T., L.D.S., R.C.S.	Stoke Prior, 25, Poole Road
1924	Hall, L. Beeching, F.L.S.	Lingdene, King's Avenue, Parkstone
1923	Harbit, Ralph A.	12, Hathaway Road, Southbourne
1923	Harding, Ralph	3, Portchester Road
1921	Hardwick, S.	57, Poole Hill
1913	Harris, Miss K.	Trescott Grange, Harvey Road, Boscombe
1924	Harris, Miss M.	Sorrento, 19, Seaward Avenue
1912	Harrison, Henry	Eden Lodge, 7, Surrey Road South

1914	Hartley, Dr. J.	62, Portchester Road
1914	Hartley, Mrs.	,, ,,
1922	Hartley, J. A.	,, ,,
1921	Hassell, Miss A. C.	Avonwood, 20, Owls Road, Boscombe
1914	Hatton, Rev. C. O. S., B.A., F.L.S.	Hinton Vicarage, Christchurch
1921	*Elected an Honorary Member	,, ,,
1925	*Haughton, E. W.*	Sunridge, Seafield Road, Southbourne
1920	Hawes, Miss	The Moorings, 27, Nelson Road
1924	Hawley, Miss H. M.	Galloway Lodge, 27, Florence Road, Boscombe
1917	Haydon, Clement J.	Ben Veula, 29, West Cliff Road
1923	Hayman, W. S., M.B.	Thorncliffe, Queen's Park South Drive
1923	Hayman, Mrs.	,, ,, ,, ,,
1923	Hayman, R. L.	,, ,, ,, ,,
1923	Hayman, Miss M. S.	,, ,, ,, ,,
1918	Haythorne, E. C. C.	Forest Lodge, Burton Road, Branksome Park
1925	*Heal, H.*	16, Holdenhurst Road
1924	Heath, Col. E., C.M.G.	Ardmore Cottage, Ardmore Road, Parkstone
1925	*Hedges, Miss G.*	Meyrick Cliffs Hotel, West Cliff
1924	Hedley, Miss E. B.	Montana, 85, Ashley Road, Parkstone
1921	Hellyar, Miss E. F.	Cerne Abbas, 1, Belvedere Rood
1921	Hellyar, Miss M. F.	,, ,,
1923	Hellyar, Miss M. R.	,, ,,
1917	Henderson, Miss A. J.	Springbank, 22, Fox Road, Greenock
1911	Henslow, Rev. Professor G., M.A., F.L.S., F.G.S.	Danehurst, 40, Branksome Wood Road
1918	*Elected an Honorary Member	,, ,, ,,
1921	Heymann, B. M.	Greencroft, Alyth Road, Talbot Woods
1921	Heymann, Mrs.	,, ,, ,,
1923	Hill, Clarence Sharp	Northfield, Chigwell Road
1904	Hinton, Miss	Welcombe, Wilfred Road, Boscombe
1924	Hoare, Mrs. A.	Broxa, Surrey Road
1924	Hoare, Miss E.	7, Cambridge Road
1922	Holdom, Mrs. E.	Cranfield, Mansfield Road, Parkstone
1910	Holmes, C. F.	Brackenwood, 37, Southern Road, West Southbourne
1909	Holmes, Mrs.	,, ,, ,, ,,
1924	Holmes, Mrs. C. S.	San Remo, Carysfort Road
1911	Holmes, Miss S. C. M.	4, Beaufort Road, West Southbourne
1921	Homer, E.	Coniston, Broadstone
1922	Homer, Mrs.	,, ,,
1922	Homer, Miss I. V. B.	,, ,,
1922	Homer, Miss L. A. M.	,, ,,
1911	Homer, L. V. C.	Carron, 54, Southcote Road
1920	Horne, Miss J.	34, Alumhurst Road
1924	Howell, W. Rees	Cintra, 35a, Richmond Wood Road
1923	Howell, Mrs. Rees	,, ,, ,,
1923	Hoyer, Miss M. A.	Chippendale, St. Swithun's Road
1911	Hudson, F.	Penarol, Parkstone
1911	Hudson, Mrs.	,, ,,
1925	Humby, H. G.	Brackendene, 23, Wimborne Road
1925	Humby, Mrs.	,, ,,
1924	Husey, Mrs.	Namouna, 25, West Cliff Road
1925	Huxham, Mrs. E.	32, Milton Road

I

1905	Ibbett, F. W., M.A.	Town Hall
1920	*Elected an Honorary Member	

1925	Insch, J. M.	16, Colville Road, Boscombe
1925	Insch, Mrs.	,, ,,
1923	Isaacs, G. H., B.A.	Hillsley, Caledon Road, Parkstone
1923	Isaacs, Mrs.	,, ,, ,,

J

1924	Jackson, Miss J. A.	Ferndale, 22, Walpole Road
1924	Jackson, Miss H. M.	,, ,,
1924	Jackson, A.	,, ,,
1924	Jackson, Mrs.	,, ,,
1921	Jackson, Mrs. Gidlow	64, Portchester Road
1922	Jackson, W., M.A., B.C.L., F.R.G.S.	Newleaf, 58, Wellington Road
1912	James, T. B.	Trevenen, Howard Road
1912	James, Mrs.	,, ,,
1920	James, S.	,, ,,
1911	Jeffery, T. J. P.	Meldon, Ormonde Road
1923	Jenkins, Miss B. M.	7, Talbot Avenue
1925	Jones, Miss A. R.	Abbotsfield, 1, Leicester Road, Branksome Park
1922	Jones, E. Marsden, F.L.S.	Church House, Potterne, Devizes
1922	Jones, Mrs.	,, ,, ,,
1922	Jones, J. Williamson	Tyndal Lodge, Forest Road, Branksome Park
1908	aJones, W.	3, Granville Road, Boscombe
1905	Jones, W.	254, Old Christchurch Road

K

1910	Kay, A. J.	Valliscourt, 100, Lowther Road
1923	Kenrick, Miss M.	46, Alum Chine Road
1913	Killick, H. F.	Rawdon, 9, Marlborough Road
1919	Kilner, John	St. Mary's, Chessel Avenue
1916	Kilner, Miss E. M.	,, ,,
1919	Kilner, Miss R. M.	,, ,,
1919	Kilner, Miss S.	,, ,,
1920	Kitching, Mrs.	Fernworthy, Brunstead Road
1922	Knight, J. W.	The Yews, 2, Leigham Vale Road, W. Southbourne

L

1919	Lacey, Howard, B.A.	50, Wellington Road
1922	Lancaster, W.	66, Herberton Road, W. Southbourne
1918	Langley, Miss C.	96, Richmond Wood Road
1919	La Touche, Miss	Oakfield, Danecourt Road, Parkstone
1921	Latter, Mrs. A.	33, Portchester Road
1922	Lawrence, Sidney C., M.B., Ch.B., D.P.H.	106, Richmond Park Road
1923	Lawrence, Mrs.	,, ,,
1918	Lee, E. Kenworthy	Rosebank, 39, Lansdowne Road
1919	Leech, Miss M. E.	Castle Bar, 32, Crabton Close Road, Boscombe
1919	Leech, Miss M. M.	,, ,, ,, ,,
1924	Legg, Mrs. A. E.	4, Hinton Road
1910	Lendrum, Miss A. M.	San Remo, 13, Carysfort Road
1918	Lindsay, Miss L.	Seathwaite, Sandringham Road, Parkstone
1903	**G** o*Linton, Rev. E. F., M.A., F.L.S.	The Cottage, 79, Belle Vue Road, Southbourne

1925	*Little, J. T.*, M.A.	Yed Hill, Ringwood
1925	*Little, Mrs.*	,, ,,
1925	*Little, Miss S. R.*, M.A.	,, ,,
1925	*Little, Miss C. J.*	,, ,,
1922	Littleboy, Miss E. S.	2, Bodorgan Manor, 12, Bodorgan Road
1923	Littlewood, Engineer Capt. A. W., R.N., retd., O.B.E., Chevalier Legion of Honour	28, Princess Road
1922	Logan, T. T.	10, Argyll Road, Boscombe
1916	Logan, Mrs.	,, ,,
1922	Logan, Miss G. M.	,, ,,
1922	Logan, Miss S. M.	,, ,,
1924	Longbottom, F. W., F.R.A.S.	Haslemere, Penrith Road, Boscombe
1922	Longstaff, Mrs. T. G.	Picket Hill, Ringwood
1920	ALove, W. J. E.	St. Clement's School House
1903	oLupton, Miss	Bolingbroke, Knole Road
1909	Lyon, Claude	Carbery Wood, Southbourne.

M

1925	Macdonald, Major General Sir Ronald, K.C.I.E., C.B., D.L., LL.D., Col. Comt., R.E.	70, Wellington Road
1925	Macdonald, Lady	,, ,,
1908	AMackay, Miss	8, King's Park Road
1911	McBean, Miss J.	Inglenook, 29, Parkwood Road
1909	McBean, Miss S.	St. Michael's, Buxton
1923	McDonald, Miss M.	Heatherfield, 15, Gerald Road
1920	Male, H. C., M.D., M.R.C.S.	35, Irving Road, West Southbourne
1925	Male, Miss G. E.	,, ,, ,,
1922	Mangin, S. H.	Burton, Christchurch
1917	Marston, Miss G.	Bourne Hall Hotel
1913	Martin, Miss F. G.	32, Southbourne Road
1923	Martin, W. H. N.	Castlemount, Glenair Road, Parkstone
1925	Mason, Mrs. F.	The Anchorage, Hathaway Road, Southbourne
1921	Massingberd, A. K.	17, West Cliff Road
1921	Massingberd, Miss A. A.	,, ,,
1914	Mate, Sidney J.	10, Landseer Road
1921	Mate, Mrs.	,, ,,
1918	Matthews, Mrs. J. P.	The Bungalow, Lascelles Road, Boscombe
1925	*Matthews, Mrs. M.*	Netherbury, Cecil Road, Boscombe
1925	*Matthews, Miss M.*	,, ,, ,,
1925	*Mattocks, T.*	Meyrick Cliffs Hotel, Beacon Road
1921	Mattocks, Mrs.	,, ,, ,,
1922	Mattocks, T. E. T.	,, ,, ,,
1925	*Mattocks, C. G. B.*	,, ,, ,,
1925	Mee, D. E.	99, Richmond Wood Road
1925	Mee, Mrs.	,, ,,
1925	Miles, Miss	21, King's Park Road
1925	*Miller, Miss B.*	Sunnycroft, Penrith Road, Boscombe
1925	*Miller, Mrs. R.*	Meldon, 3, Ormonde Road, Branksome Park
1922	Moore, Major T. C., I.M.S.	Verwood, Dorset
1919	Moorhead, Mrs.	Brightlands, 34, Crabton Close Road
1908†*	Morris, Sir Daniel, K.C.M.G., J.P., M.A., D.SC., D.C.L., LL.D., F.L.S.	14, Crabton Close Road
1911	Morris, Lady	,, ,,
1925	Morris, Miss E.	Ardmore Lodge, Ardmore Road, Parkstone

1921	Morse, C. G. H., M.A., M.R.C.S.	Sherborne, Chessel Avenue
1922	Morse, Mrs.	,, ,,
1922	Morse, F. A.	,, ,,
1908	Moss, Miss	The Grange, 52, Westby Road
1924	Moulson, Miss R.	20, St. Stephen's Road
1925	Murray, Charles	Hallowdene, Belle Vue Road, Parkstone

N

1919	Nankivell, B. W., M.R.C.S., L.R.C.P.	Woodstock, 2, West Cliff Road
1922	Nanson, Mrs. C.	2, Grand Avenue, W. Southbourne
1903	oNeale, J., B.A.	Clonenagh, 7, Montague Road, W. Southbourne
1910	Neale, Mrs.	,, ,, ,, ,,
1918	Neale, Miss J.	,, ,, ,, ,,
1912	Neave, Miss	Lingdale, 73, Lansdowne Road
1921	Neve, Miss G.	Thorpe, 5, Watkin Road
1925	Newman, Mrs. C. A.	Harewood, 17, Dean Park Road
1921	Ninnes, G. 1.	St. Ives, Watcombe Road, West Southbourne
1914	Norton, Mrs.	Ashton Court, Branksome Park

O

1920	Oaten, Mrs.	19, Sunnyhill Road, W. Southbourne
1922	AOdell, Miss M. E., B.SC.	Sandecotes School, Parkstone
1910	Oke, A. W., B.A., LL.M., F.G.S., F.S.A.	32, Denmark Villas, Hove, Brighton
1924	Ormrod, T. B.	20, Knole Road
1920	Osborne, John H.	Woodside, Kinson
1920	Osborne, Mrs.	,, ,,
1920	Osborne, Eric A.	,, ,,
1922	Ousby-Trew, Rev. C., M.A.	Overthorpe, 19, Florence Road, Boscombe
1922	Ousby-Trew, Mrs.	,, ,, ,, ,,
1922	Ousby-Trew, Miss	,, ,, ,, ,,

P

1903	oPainter, Hubert, B.SC.	29, Talbot Road, Winton
1904	Painter, Mrs.	,, ,,
1923	Park, James	Broughty Ferry, 34, Sea Road, Boscombe
1919	Parker, J. A. D.	22-23, Chiswell Street, London, E.C.1
1919	Parker, Miss M.	The Cliff, 13, Southwood Avenue, W. Southbourne
1924	Pattinson, Dr. T. W.	59, Wellington Road
1924	Pattinson, Mrs.	,, ,,
1925	Peach, Miss M. E.	12 Bryanston Road
1922	Peek, Bertrand M., M.A., F.R.A.S.	Gorse Cliff School, 8, Boscombe Spa Road
1923	Peel, F. W.	13, Portarlington Road
1924	Pells, J.	9, Stokewood Road
1913	Penrose, F. G., M.D., F.R.C.P., F.Z.S., M.B.O.U.	Woodbury, 9, Grove Road, East Cliff
1916	Penrose, Mrs.	,, ,, ,,
1916	Penrose, Miss F.	,, ,, ,,
1916	Penrose, Miss M.	,, ,, ,,
1912	Pestell, Miss	Engelberg, 92, Surrey Road
1911	Phillips, Mrs.	21, McKinley Road
1921	Phillips, Rev. C. A.	Walton House, Richmond Hill
1921	Phillips, Miss C. E.	,, ,, ,,
1912	Philpott, Mrs.	58, Barkstone Gardens, S. Kensington, S.W. 5.

1925	*Pigeon, H. W.*, M.A., M.B., B.CH., F.R.C.S.	Ebor Lodge, Church Road, Canford Cliffs
1920	Pilkington, Mrs. K. C. S.	The Steyne, 9, Manor Road
1920	Pilkington, Miss K. D.	,, ,,
1920	Pilkington, Miss L. D.	,, ,,
1921	Pontifex, R. D.	Dalton House, 68, Christchurch Road
1920	Pontifex, Mrs.	,, ,, ,,
1921	Pontifex, G. K. D.	,, ,, ,,
1922	Potter, H.	19, Studland Road
1925	*Price, L.*	Oakwood, Harvey Road, Boscombe
1925	*Price, Mrs.*	,, ,, ,,
1925	Price, Miss H. B. K.	,, ,, ,,
1918	Punch, Cyril	60, Wellington Road

Q

1922	Quick, R., F.S.A. (Scot.), M.J.S.	Russell-Cotes Art Gallery and Museum
1924	Quick, Mrs.	,, ,, ,, ,,

R

1925	Radcliffe, Rev. A. C.	Thelbridge, Keswick Road, Boscombe
1925	Radcliffe, Mrs.	,, ,, ,, ,,
1925	Radcliffe, Miss	,, ,, ,, ,,
1923	Radford, Miss A.	46, Alum Chine Road
1912	Rankin, W. Munn, M.SC. (Leeds), B.SC. (Lond.)	Municipal College, Burnley, Lancs.
1920	*Elected an Honorary Member	
1916	Rankin, Mrs. Munn	Stoneleigh, Heron Court Road
1917	Ranshaw, Miss E. M.	9, Warren Road
1918	Ratcliffe, Mrs.	Brooklands, 32, Branksome Wood Road
1924	Ray, Miss I. E.	Mizpah, 35, Nelson Road
1919	Rayner, Miss F.	The Homestead, 9, St. John's Road, Boscombe
1905	*Rayner, J. F., F.R.H.S., M.B. MYC. S.	Swaythling, Southampton
1922	Rebbeck, Sub.-Lt. L. E.	Stafford Lodge, 26, Dean Park Road
1922	Rebbeck, Major T. V.	Chota Koti, 7, Stoke Wood Road
1924	Redman, Mrs. J.	19, Milton Road
1923	Reeves, Miss S., M.B.E.	St. Cross, 13, Bodorgan Road
1924	*Reid, Mrs. E. M., B.SC., F.L.S.	Pinewood, Milford-on-Sea
1922	Rentoul, Miss E.	Brightlands, 34, Crabton Close Road, Boscombe
1920	Restall, W. T.	26, Seaward Avenue, W. Southbourne
1919	Richards, Miss E. E., B.SC.	West Cliff Towers, 12, Priory Rood
1922	Riding, Miss M.	Glengarry, 46, Drummond Road
1916	Roberts, H. Astley, B.A.	Shalvah, Wilfred Road, Boscombe Manor
1918	Roberts, Mrs.	,, ,, ,, ,,
1924	Roberts, Mrs. J.	Aysgarth, 16, Poole Road
1924	Roberts, Mrs. W. F. M.	19, Florence Road, Boscombe
1924	Robertson, W. G. A., M.D., F.R.C.P., F.R.S. Edin., F.S.A.S.	St. Margaret's, Keswick Road, Boscombe
1921	Robins, Miss E.	11, Richmond Wood Road
1923	Roden, Miss E. M.	14, Campbell Road, Boscombe
1920	Rogers, Miss C. M.	4, Hengist Road
1905	Rogers-Barns, Miss	Vergers Mead, Corfe Castle
1914	Rooke, Miss S. G.	Norbury, 53, Paisley Road
1914	*Roper, Miss Ida M., F.L.S.	4, Woodfield Road, Redland, Bristol

1922	Rosling, Alfred W.	85, Wimborne Road
1922	Rosling, Mrs.	,, ,,
1922	Rosling, Miss D. M.	,, ,,
1922	Rosling, Miss M. G.	,, ,,
1916	Rothwell, Mrs.	Mellstock, Montague Road, W. Southbourne
1925	*Ruddle, Mrs. F. J.*	12, Richmond Park Crescent
1913	Russell-Cotes, H. V. M.	8, Meyrick Park Crescent
1925	Ryan, J. E.	Elmstead Cottage, Elmstead Road, Canford Cliffs
1925	Ryan, Mrs.	,, ,, ,, ,,
1916	Ryley, S. Clement, J.P.	The Square, Wimborne

S

1925	Sabine, Major G. A.	Whinchat, Walkford, Christchurch
1925	Sabine, Mrs.	,, ,, ,,
1924	Sanders, Miss E. E.	C/o. Miss M. Parker, 13, Southwood Avenue
1925	*Saunders, E. W.*	Deep Dale, 41, Surrey Road
1925	*Saunders, Mrs.*	,, ,,
1919	Savage, J. W.	12, Pinecliffe Avenue, W. Southbourne
1922	Savery, W. H., J.P., C.C.	6, Owls Road, Boscombe
1912	Scarlett, Miss A.	Fermoy, 4, St. Alban's Avenue
1912	Scarlett, Miss K.	,, ,,
1912	Scarlett, Miss M.	,, ,,
1914	Scholes, Denton	The Holme, 16, Cambridge Road
1915	Scholes, Mrs.	,, ,,
1922	Scholes, Raymond Denton	,, ,,
1922	Scholes, Miss V. O. M. Denton	,, ,,
1921	Schott, Miss H. C., M.R.I., F.R.G.S.	The White Cottage, 1, Southern Road, W. Southbourne
1924	Scorfield, Miss	7, McKinley Road
1919	Scott, G. B., C.I.E.	Glencoy, 80, Surrey Road
1904	Scott, J. H., M.E., M.I.M.C.E.	Kirkby, 22, Linwood Road
1905	Scott, W. H., M.A.	Hendall, 15, Herbert Road
1916	ASeeviour, G. C., A.C.P., F.R.H.S.	St. Peter's School House
1925	*Shann, W. A.*, M.B.	Heathlands, 12, Grove Road
1914	Sharp, C.	Langdon, Parkstone
1919	Sharp, Miss E.	,, ,,
1919	Sharp, Miss F.	,, ,,
1923	Shaw, Mrs. P.	Highlands, Howard Road
1923	Sherrin, T. M., M.A.	5, Landseer Road
1903	**G** oSherring, R. Vowell, F.L.S.	Hallatrow, near Bristol
1907	Sherring, Miss O. L.	,, ,,
1916	Simpson, Rev. E. J. Douglas, M.A.	Moesbury, 3, Cavendish Road
1920	Simpson, Norman Douglas, B.A., F.R.M.S., F.L.S.	,, ,,
1925	Smith, Herbert H.	9, Cambridge Road
1918	Smith, Horace, M.A., M.D.	Sunnyhurst, 7, Dean Park Road
1918	Smith, Miss M. A.	Woodside, St. Alban's Crescent
1918	Smith, T. Templeton, B.SC.	Fern Glen, 5, Ophir Road
1918	Smith, Mrs.	,, ,,
1924	Smith, Miss E. E.	Watford, St. John's Avenue, Boscombe
1923	Smith, Miss L.	C/o Lloyds Bank, Lower Parkstone
1914	Smyth, W. Johnson, M.D.	Pirbright, West Cliff Gardens
1922	Smyth, Mrs.	,, ,,
1922	Smyth, Miss M.	,, ,,
1923	Smyth, Miss Cathleen	27, Spencer Road

1912	Smythe, J. H. Ralph, J.P.	Willstead, 22, Cavendish Road
1915	Smythe, Mrs.	,, ,,
1920	Smythe, Miss D.	,, ,,
1916	Smythe, Miss K. M.	,, ,,
1919	Snell, Dr. Sidney Herbert	1, Portman Crescent
1919	Snell, Mrs.	,, ,,
1919	Snell, Miss M.	,, ,,
1924	Snell, Miss W.	,, ,,
1921	Sowton, Miss E. M.	57, Southbourne Road, W. Southbourne
1922	Speakman, Mrs. E.	13, Milton Road
1909	Spencer, J. F.	Glenthorne, 73, Richmond Park Road
1917	ASpry, Miss A. G., LL.A.	12, Sunnyhill Road, W. Southbourne
1923	Stables, A. D.	Saxthorpe, St. Osmund's Road, Parkstone
1923	Stables, Mrs.	,, ,, ,, ,,
1921	Starr, E. J., L.C.P.	Merly Tower, 15, Knole Road
1923	Starr, Col. W. H., C.B., C.M.G., C.B.E.	Nikko, Foxholes Road, Southbourne
1921	Stevens, C. S.	Goodwin, Howard Road
1916	Stiff, Sydney J., B.SC.	Norden House, Corfe Castle
1916	Stiff, Mrs.	,, ,,
1916	Stiff, Miss M. J.	,, ,,
1922	Stone, Mrs.	Fordwich, Brunstead Road
1922	Stone, Miss E. E.	,, ,,
1920	Stoney, Miss F. A., O.B.E., M.D., B.S.	Ardvoulan, 29, Poole Road
1924	Story, F. N.	Storyland, Church Road, Southbourne
1924	Story, Mrs.	,, ,, ,, ,,
1924	Strachan, W., F.R.A.S.	30, Tregonwell Road
1924	Strachan, Mrs.	,, ,,
1925	Strachan, Lt.-Col. E. A.	Moorfield, 1, Bodorgan Road
1925	Strachan, Mrs.	,, ,,
1918	**G** *Sumner, Heywood, F.S.A.	Cuckoo Hill, South Gorley, Fordingbridge
1911	Swain, H. E.	Sorrento, Studland Road
1922	*Elected an Honorary Member	
1906	Swallow, E.	York Cottage, Ravine Road, Canford Cliffs
1922	ASymes, H., M.A.	52, Lowther Road

T

1918	Tanner, Mrs. E.	33, Alumhurst Road
1911	Tatchell, Leonard, F.E.S.	Swanage, Dorset
1915	Taylor, F. B., B.A.	Claregarth, Montague Road, W. Southbourne
1916	Taylor, Mrs.	,, ,, ,, ,,
1916	Taylor, Miss M. A.	,, ,, ,, ,,
1916	Taylor, Miss M. W.	,, ,, ,, ,,
1923	Thill, J. A.	8, Colville Road, Boscombe
1923	Thill, Mrs.	,, ,,
1925	AThomasson, Miss M. E.	37, Belvedere Road
1924	Thompson, J. H.	12, Grand Avenue, West Southbourne
1924	Thompson, Mrs.	,, ,, ,, ,,
1922	Thomson, A. W. Ferguson	Ailsa, Erpingham Road
1911	Thomson, Mrs. Roberts	Monkchester, 17, Manor Road
1919	Thoroton, Rev. E. W.	Hill House, Spencer Road, Canford Cliffs
1911	Tickell, Miss S. M.	Pinewood, 56, Stourcliffe Avenue, W. Southbourne
1921	Tolson, Miss A.	Brandwood, Commercial Road, Parkstone
1921	Tolson, Miss L. R.	,, ,, ,, ,,
1921	Tolson, Miss M.	,, ,, ,, ,,
1920	Townesend, Mrs. G. B.	31, Hamilton Road, Boscombe
1911	Turner, J. E.	Bramley, 94, Surrey Road

1923	Turpin, Miss A.	Sorrento, 19, Seaward Avenue, W. Southbourne
1914	Twemlow, Miss E. E.	Devon Lodge, 83, Alumhurst Road

U

1923	Uhthoff, J. C., M.D., F.R.C.S.	7, Branksome Wood Road
1923	Uhthoff, Mrs.	,, ,,
1923	Uhthoff, Miss C.	,, ,,
1923	Uhthoff, Miss R.	,, ,,

V

1913	Veale, Miss A. G.	2, Richmond Park Crescent
1923	Veale, Miss B.	,, ,,
1923	Veale, Miss C. M.	,, ,,
1923	Veale, Miss L. H.	,, ,,
1924	Veale, Miss C.	Merlewood, 20, Braidley Road
1924	Veale, Miss M. E.	,, ,,
1908	Vernon, Lieut.-Col., A. H., L.R.C.P., F.R.C.S.	1, Carnarvon Crescent, Boscombe
1918	Vickers, Herbert U.	32, Lowther Road
1918	AVorse, John	Leighurst, Walkford, Christchurch

W

1903	**G** o*†Waddington, H. J.	Moreton, 107, Lowther Road
1918	*Elected an Honorary Member	
1924	AWadlow, H. J.	Clarendon, North Road, Parkstone
1916	Walby, A. E.	Netherton, 2, Dean Park Road
1921	Wales, Miss	The Nook, 4, Ormonde Road, Branksome Park
1921	Wales, Miss N.	,, ,, ,, ,,
1918	Walker, R. S.	Meyrick Cliffs Hotel
1921	Walker, Miss Royston	17, Portman Crescent, W. Southbourne
1913	Wallace, W. G.	Doveshill Cottage, Ensbury Mount
1912	Walter, Mrs. G. P.	Rusholme, 10, St. Anthony's Road
1923	Walter, T. James	101, Lowther Road
1920	Wanstall, W. S.	Del Monte, 6, Roslin Road
1920	Wanstall, Mrs.	,, ,,
1924	Ward, J.	Kya Lami, St. Ledger Road
1905	Waters, A. W., F.L.S., F.G.S.	Alderley, 2, McKinley Road
1906	Waters, Mrs.	,, ,,
1923	Watts, W. H.	4, Stourwood Avenue, W. Southbourne
1914	Webber, A. E.	28, Tower Road, Boscombe
1925	*Webber, Miss L.*	53, Princess Road
1909	Webster, Rev. T. S.	Devonia, Glenmore Road
1917	Webster, Mrs.	,, ,,
1920	Wells, Rev. E., M.A.	Glen Roy, 22, Studland Road
1924	West, Miss M. G.	Larnaca, 23, Argyll Road, Boscombe
1913	Wetherell, Miss M.	Triana, 21, Harvey Road, Boscombe
1920	Wetherell, Miss S.	,, ,, ,, ,,
1918	Whitaker, S.	22, Somerset Road, Boscombe
1924	Whitaker, S. E., M.S.A.	22, Selwood Road, Addiscombe, Croydon
1924	Whitaker, Miss E. M.	Weirfields School, Taunton
1920	White, J. R., M.A.	Whitecot, 15, Linwood Road
1920	White, Mrs.	,, ,,
1921	White, Mrs. E. Sinclair	70, West Cliff Road
1922	Whittaker, H.	Wheaton Lodge, 16, Branksome Wood Road
1922	Whitting, A.	83, Poole Road

1920	Whittle, Mrs. E.	Doveshill Farm, Ensbury Mount, Bournemouth
1916	Whyte, A. C.	Byberry, 5, Roslin Road
1916	Whyte, Mrs.	,, ,,
1916	Whyte, Miss M. C.	,, ,,
1916	Whyte, Miss M. N.	,, ,,
1919	Williams, John	Brynmill, 68, Southcote Road
1924	AWillis, Miss G. H.	116, Paisley Road, West Southbourne
1917	Wingfield, T. R.	12, Suffolk Road
1920	Woodhouse, Rev. A. P.	Deanhurst, 5, Littledown Road
1905	Woodhouse, W. J., A.C.P., M.I.H.	35, Chatsworth Road, Malmesbury Park
1918	Woodhouse, Mrs.	,, ,, ,, ,,
1923	Woodhouse, W. R.	,, ,, ,, ,,
1923	Woodhouse, Miss M. M.	,, ,, ,, ,,
1925	Wynne, Miss E. A.	37, Portchester Road

Y

1924	Yates, Rev. A. G., M.A., R.N.	14, Wellington Road
1924	Yates, Mrs.	,, ,,
1924	Yates, Miss E. M. M.	,, ,,
1917	AYoung, Miss A.	6, Salisbury Road, Boscombe

RULES OF THE
Bournemouth Natural Science Society.
Amended 10th October, 1925.

Title

1.—The title of the Society shall be THE BOURNEMOUTH NATURAL SCIENCE SOCIETY.

Objects

2.—The objects of the Society shall be:

(*a*) The promotion of the study of Science in all its branches, by means of Lectures, Field Meetings, the Reading and Discussion of Papers, the formation of Sections of its members devoted to any particular branch of the Society's work, and in any way that the Council of the Society shall deem advisable.

(*b*) The making of reports on any animal, plant, or object of interest, and the carrying out of the recommendations contained in such reports.

Members

3.—The Society shall consist of Ordinary, Life, Honorary and Associate Members.

Ordinary Members

4.—Ordinary Members shall pay an Annual Subscription of One Pound, **due on the first** day of October in each Year. The inclusive Annual Subscription for Adult Members of the same family, not exceeding four and residing in the same house, shall be Two Pounds, each Member being elected in the usual manner and each receiving a card of membership. Persons living outside a radius of six miles from the Square at Bournemouth may be elected Country Members, and pay one half the above rates of subscription.

Life Members

5.—The Subscription for Life Members shall be Ten Pounds. Any Ordinary Member who shall have commuted his Subscription, as provided for in this Rule, shall become a Life Member, but shall not by reason thereof have any rights differing from those of an Ordinary Member.

¶ Rules 5a and 5b referred to in the Trust Deed are Rules 19 and 20.

Honorary Members

6.—Any person distinguished in Science or who has rendered any special service to the Society, may be elected an Honorary Member. Honorary Members shall be proposed and elected in the same way as Ordinary Members. The number of Honorary Members shall be limited to twenty.

Associate Members

7.—Persons may be admitted Associate Members by the Council on account of their scientific attainments or because they are likely to prove useful working Members of the Society. This privilege will usually be granted to School Teachers.

The annual subscription for Associate Members shall be seven shillings and sixpence. They shall be entitled to all the privileges of Membership except that they shall have no power of voting on the affairs of the Society or of holding office.

Proposal and Election of Members

8.—The Ordinary, Life, and Associate Members of the Society shall be proposed by a Member to whom they are known personally or to whom they have presented adequate credentials, and seconded by another Member, and the proposal, in the form following these Rules, shall be sent to the Honorary Secretary. The name of any such proposed new Member shall be posted on the Notice Board of the Society for a period of not less than seven days, after which such name shall be voted upon at the next ensuing Council Meeting, and if two-thirds of the Council present and voting shall vote for the proposed New Member, such Candidate shall become a Member upon payment of the Annual Subscription and shall receive a Card of Membership which is not transferable. Any Member joining during August or September shall receive a Card of Membership to September 30th of the following year without further payment.

Unpaid Subscriptions

9.—Any Members whose subscriptions are unpaid at the end of the financial year (September 30th), after notice in writing to that effect has been given to them by the Honorary Treasurer, shall be reported to the Council, which shall have the power of removing their names from the list of members.

Resignations

10.—Resignations must be in writing and addressed to the Honorary Secretary. Members are liable for all subscriptions which may have fallen due prior to the date of resignation.

Executive Officers.

11.—The Executive Officers of the Society shall be the Chairman of Council, the Deputy Chairman of Council, Honorary Treasurer, and Honorary Secretary.

The President

12.—The President shall be elected annually and need not necessarily be selected from Members of the Society. He shall be invited to deliver an Address at as early a date in the Winter Session as can be arranged.

Vice-Presidents

13.—Any Member of the Society who, in the opinion of the Council, has rendered distinguished service to Science or to the Society, shall be eligible for election as a Vice-President at the Annual Meeting and, if elected, shall retain office as long as he remains a Member of the Society.

Chairman of General Meetings

14.—The President or a Vice-President shall take the Chair at all General Meetings other than the Annual and Special Meetings. At these the Chairman of Council or Deputy Chairman shall preside.

Honorary Secretary

15.—The Honorary Secretary shall perform all the usual secretarial work, shall keep minutes of all Council Meetings, and of the Annual and Special Meetings, and make a synopsis of all other General Meetings. He shall cause the agenda of the Annual and Special Meetings to be sent to every Member seven days at least before each such Meeting. He shall make all preparations for General Meetings and General Excursions, in respect of which he shall collect from each Member his share of the expenses, and therefrom defray all costs of the Meetings or Excursions. Any surplus of such collections shall go to the General Fund, and any deficit be defrayed out of that Fund. He shall keep an account of all out-of-pocket expenses. He shall give notice of their election to all new members, and register the Sections, if any, to which they ask to belong. He shall furnish copies of the Annual Reports published during their membership, to all Members who have paid their subscriptions, the number of copies of the "Proceedings" supplied in respect of each family subscription shall not exceed two; to Honorary Members, and to such Scientific Societies as the Council may from time to time appoint to receive them.

Honorary Treasurer

16.—The Honorary Treasurer shall have the custody of the General Funds of the Society. He shall receive and acknowledge all Subscriptions, and shall issue tickets of Membership to all persons who are duly elected and have paid their Subscriptions. He shall bring before the Council any accounts that are due for payment. He shall prepare a financial Statement at the end of each Financial Year to be presented to the Council at the Meeting next preceding the Annual Meeting. After presentation of the Financial Statement to the Council, he shall submit it to the Auditors and lastly to the Annual Meeting of the Society.

Council

17.—There shall be a Council of the Society consisting of the Vice-Presidents who have filled the office of President, the Honorary Treasurer, the Honorary Secretary, the Honorary Librarian, the Honorary Editor, the Honorary Curator, the Chairmen of Sections, not more than ten Members elected by the Society and not more than two co-opted Members.

18 (*a*).—The Council shall have the general management of the Society and the control of its funds. At all Meetings of the Council, five shall form a quorum. The Council shall elect its own Chair-

man and Deputy Chairman for the Year, shall have power to fill up vacancies in its number, and to co-opt not more than two additional members. The Council shall have power to appoint Committees to deal with any business that may be delegated to them.

(*b*) The Chairman, or in his absence the Deputy Chairman, shall have an original and a casting vote at all Meetings of the Council.

(*c*) The Council shall arrange all Lectures, Papers, Demonstrations and Exhibitions of Specimens, etc., for the General Meetings and Excursions of the Society, and shall approve of all arrangements for Sectional Meetings and Excursions before they are included in the monthly programme.

(*d*) If any elected or co-opted member of the Council shall fail to attend four consecutive Meetings of the Council, his seat shall become vacant unless the Council shall decide otherwise.

Trustees

19.—The property of the Society shall be vested in Trustees who shall be elected by the Council. The number of Trustees shall be not more than nine or less than three, and they shall respectively hold office until death or resignation, unless removed from office by a resolution of the Council. The Trustees shall from time to time deal with the property of the Society as directed by resolution of the Council (of which an entry in the minute book shall be conclusive evidence), and they shall be indemnified against all liability whatsoever out of the property for the time being of the Society.

¶ This Rule is referred to in the Trust Deed as Rule 5a.

Borrowing Power

20.—If at any time the Society in general meeting shall pass a resolution authorising the Council to borrow money, the Council shall thereupon be empowered to borrow for the purposes of the Society such amount of money, either at one time or from time to time, and at such rate of interest, and in such form and manner, and upon such security as shall be specified in such resolution, and thereupon the Trustees shall make all such dispositions of the property of the Society or any part thereof, and enter into such agreements or arrangements in relation thereto, as the Council may by resolution direct for giving security for such loan or loans and interest thereon at the agreed rate. All members of the Society, whether voting on such resolution or not, and all persons becoming members of the Society after the passing of such resolution shall be deemed to have assented to the same as if they had voted in favour of such resolution.

¶ This Rule is referred to in the Trust Deed as Rule 5b.

Visitors

21 (*a*).—A Member may introduce friends who accompany him to all parts of the Society's premises except those which are let or in use for a Lecture or Meeting. The Member must enter the names and addresses of such Visitors in the Visitors' Book and sign the entry. Strangers cannot be admitted on presenting a Member's card or letter.

(*b*) A Member may introduce two Non-Members, who accompany him, to any Lecture or Excursion of the Society, but no Non-Member may be thus introduced to more than two Lectures in the Winter Session and two Excursions in the Summer Session, even though introduced by different Members. In the case of Lectures, the introducing Member must enter the names and addresses of the Visitors in the Visitors' Book and sign the entry. In the case of Excursions, the introducing Member must send the names and addresses to the Organiser of the Excursion.

(*c*) A Member introducing a Visitor is responsible for ascertaining that the Visitor has not been introduced twice previously in that Session and also that the privilege is not used for commercial purposes.

(*d*) A Visitor to Bournemouth may, with the approval of the Council, be granted a ticket enabling him to attend the Meetings and Excursions of the Society for a period not exceeding six months at a charge of Fifteen Shillings.

(*e*) The Council shall have power to extend the hospitality of the Society to distinguished Visitors.

(*f*) The Council shall have power temporarily to alter or suspend this Rule or any part of it.

Charges for Meetings

22.—The Council shall have power to make a charge to Members for admission to any Meeting the holding of which involves special expenses, and may arrange for the admission of Non-Members.

Expulsion

23.—The power of expulsion of a Member from the Society for objectionable conduct shall be vested in the Council and exercised at a Special Meeting called for that purpose. Notice of the proposed expulsion must be given on the circular convening the Meeting. The expulsion must be carried by a majority of two-thirds of those present.

The Member affected shall have power to appeal to a General Meeting of the Society to act by the like majority.

The Annual and Special Meetings

24 (*a*).—The Annual Meeting shall be held in the month of October.

(*b*) At this Meeting the President, the Chairmen of Sections, the Honorary Treasurer, the Honorary Secretary, the Honorary Librarian, the Honorary Editor, the Honorary Curator, not more than ten Members of Council and two Auditors for the ensuing year shall be elected, either Auditor having the power to audit the accounts in the absence of the other.

(*c*) At this Meeting the Council's Report for the past year, and the Honorary Treasurer's statement of accounts duly signed by the Auditors, shall be submitted.

(*d*) Notice convening an Annual or Special Meeting, together with the agenda and details of any proposed alterations in the Rules, shall be given to Members at least seven clear days before such Meeting is held. Notice of General Meetings shall be given at least seven clear days beforehand.

(*e*) On a written Requisition, signed by at least ten Members of the Society, the Council shall call a Special Meeting to consider any question as to the affairs of the Society, such Meeting to be called within three weeks of the Council Meeting next following the receipt by the Honorary Secretary of the Requisition, and at least seven clear days' Notice shall be given to the Members. At such Meeting no other business than that mentioned on the Requisition, and on the notice convening such Meeting, shall be considered.

(*f*) At the Annual Meeting and at all Special Meetings of the Society, not less than twenty-five Members shall form a quorum.

Section

25 (*a*).—The Council shall have power to form a Section for the study of any special subject deemed within the scope of the Society's work, and shall appoint the Chairman for the first year.

(*b*) The Chairman of each Section shall appoint a Secretary for the Section, who, in addition to the ordinary secretarial duties, shall keep a list of the Members of the Section.

(*c*) A Section shall consist of those Members who have signified to the Honorary Secretary or the Secretary of the Section their wish to belong to that Section.

(*d*) The Members of each existing Section shall, at a Meeting held before the last week in July in each year, nominate the Chairman of the Section for the ensuing year to come into office after the Annual Meeting. The Secretary of the Section shall send such Nomination to the Honorary Secretary in time to present it at the Council Meeting held on the last Monday in July.

(*e*) If the Council approve of the Nomination, it shall recommend the person nominated for Election at the Annual Meeting, otherwise it shall refer the matter back to the Section. In the event of a Section failing to nominate a Chairman, the Council shall have the right to do so. The final Election shall take place at the Annual Meeting.

(*f*) At the request of the Sectional Chairman the Secretary of a Section may attend Meetings of the Council, but without the power of voting .

(*g*) Each Sectional Chairman shall be responsible for the preparation and arrangement of each Sectional Meeting and Excursion, and shall furnish details of the same to the Honorary Secretary for submission to the Council. At the end of each Session he shall render to the Honorary Treasurer an account of his receipts and payments for the Section.

(*h*) A Minute Book for each Section shall be kept in which shall be entered details of the Section's work and an account of all Sectional Meetings, with the number of Members attending and notes on any matters of interest observed or discussed. Such book shall be submitted to the Council whenever required. The Chairman of each Section shall send to the Honorary Secretary a report of the Section's work for the year in time for it to be epitomised in the Council's Report to the Annual Meeting.

Alterations in Rules

26.—Alterations in the Rules must be sanctioned by a majority of not less than two-thirds of the Members present and voting at the Annual Meeting, or at a Special Meeting called for that purpose, and no alterations shall otherwise be made.

To the Honorary Secretary,

Bournemouth Natural Science Society,

39, CHRISTCHURCH ROAD, BOURNEMOUTH.

Dear Sir,

I beg to propose that

M...

(Please give Christian name in full, and state title—Mr., Mrs., Miss, etc., and any degrees or qualifications.)

Address...

....

**who is personally known to me*
**who has produced satisfactory credentials to me* *be elected an* **Ordinary* / **Associate*

Member of the Society.

Date................ *Member's Signature* ....

I beg to second the above proposal

Date.................. *Member's Signature*......................................

*Delete word not applicable. See extract from Rules on reverse of this form.

Annual Meeting, 1925.

THE Twenty-second Annual Meeting was held at 39, Christchurch Road, on Saturday, October 10th, at 3 p.m.

The Chairman, Mr. J. H. Ralph Smythe, J.P., congratulated the Society on a record membership, and pointed out that the fact that the balance on hand had suffered diminution was due to various improvements that had been made to the premises. He also expressed regret at the loss sustained by the death of such distinguished members as Lord Grenfell, the Rev. H. S. Solly, and Colonel E. E. Markwick.

The minutes of the last Annual Meeting and the Council's Report for the past year were then read, and the Hon. Treasurer presented his Annual Statement of Accounts. The adoption of these was carried on the proposal of Surgeon Capt. Borrett, R.N., seconded by Mr. T. J. P. Jeffery. Mr. J. R. White then proposed, and Mr. W. J. Woodhouse seconded, an amendment to Rule 15: to insert after the word "subscriptions," the clause "The number of copies of the Proceedings supplied in respect of each Family Subscription shall not exceed two." This was carried. The election of Officers and Council and Chairmen of Sections was proposed by the Chairman, seconded by Mr. G. F. Gibbs, and carried. The Rev. A. G. Yates was elected joint Hon. Secretary. The election of the Hon. Auditors, Mr. Bicker and Mr. Blackett, was proposed by Mr. J. Williams, seconded by Mr. H. W. V. Colebrook, and carried.

Sir Daniel Morris tendered the thanks of the Society to Mr. Hubert Painter for his services during the past year and proposed his re-election as President. This was seconded by Dr. G. E. J. Crallan, and unanimously carried. Mr. Painter thanked the meeting for the honour conferred upon him and expressed his pleasure in his re-election.

The proceedings closed with a vote of thanks to the Chairman.

Council's Report, 1925.

THE Twenty-second Annual Report enables the Council to record another year of activity and usefulness. There has been a slight increase in the Membership from 654 on September 30th last year, to 659 on the same date this year.

During the year, General, and other, Meetings have been held as follows:—

Annual Meeting
Presidential Address
4 General Lectures
76 Sectional and other Meetings
5 General Excursions
30 Sectional Excursions

making a total of 117 Meetings and Excursions.

The General Lectures were :—

(*Illustrated by Lantern Slides.)

1924.
Oct. 11.—Annual General Meeting.
Nov. 22.—Presidential Address by Mr. Hubert Painter, B.Sc., F.C.S. Subject, "Science and Human Welfare."
*Dec. 13.—"Pre-Conquest Churches," by Mr. F. W. Ibbett, M.A.
1925.
*Jan. 17.—"Some Curious Things to be seen in Cornwall," by Dr. T. F. G. Dexter, B.A., B.Sc.
*March 7.—"The Land of the Sea Kings." In the large hall at the Municipal College, by Mr. C. J. Hankinson, J.P.
April 18.—Presentation to the Hon. Secretary, Mr. R. A. de Paiva, on attaining his 84th Birthday.

Sectional Lectures.

In the Archæological and Historical Section.

1924.
*Nov. 29.—"Antiquities Visited in 1924," by Col. J. R. Dodd, M.D., F.R.C.S.
1925.
*Jan. 9.—"The Ancient Greeks, their time, place, and influence," by Mr. R. K. Cardew, B.A.
*Jan. 22.—"Crete," by Miss H. C. Schott, M.R.I., F.R.G.S.
*Feb. 7.—"Tutankhamen," by the Rev. A. G. Yates, M.A., R.N.
*Feb. 14.—"The Antiquities of Cornwall," by Mr. R. Quick, F.S.A. (Scot.).
*Feb. 26.—"Fleet Street," by Mr. W. Marlow.
March 5.—"The Old Romans, their time, place and influence," by Mr. R. K. Cardew, B.A.
*April 1.—"The Nile," by Miss H. C. Schott, M.R.I., F.R.G.S.
*April 24.—"A Glimpse of the Archæology of Southern France, Palæolithic, Neolithic and Roman," by Col. J. R. Dodd, M.D., F.R.C.S.

In the Astronomical and Mathematical Section.

1924.
Oct. 27.—"Time and its Determination," by Mr. B. M. Peek, M.A., F.R.A.S.
Nov. 10.—"Eclipsing Variables," a study of their interior economy and light curves, by Col. E. E. Markwick, C.B., C.B.E., F.R.A.S.
Nov. 27.—"Limits and Small Quantities," by Mr. B. M. Peek, M.A., F.R.A.S.
Dec. 8.—"The Spectroscope and Stellar Evolution," by Mr. B. M. Peek, M.A., F.R.A.S.
1925.
*Jan. 7.—"The Planet Mars," by Dr. W. H. Steavenson, F.R.A.S.
*Feb. 16.—"From the Sky to the Screen," by Mr. F. W. Longbottom, F.R.A.S.

March 16.—"Lunar Occultations," by Mr. B. M. Peek, M.A., F.R.A.S.

In the Botanical Section.

1924.

*Oct. 18.—"Palms and their Products," by Mr. J. A. Alexander, F.R.G.S., F.R.S. (Edin.).

Dec. 15.—"How do Plants Multiply?" (illustrated by large diagrams), by Mr. F. J. Rayner, F.R.H.S., M.B. Myc. Soc.

1925.

*Jan. 2.—"The Vegetation of Chalk Soils," by Mr. W. Munn Rankin, M.Sc., B.Sc.

Jan. 10.—"At Home." (In conjunction with the Microscopical Section.)

*Feb. 12.—"Posies and Poesie," by the Rev. Geo. Sampson, M.A.

March 26.—"Tropical Trees and Plants," by Mr. J. A. Alexander, F.R.G.S., F.R.S. (Edin.).

*April 7.—"Wild Plant Studies," by Mr. L. Beeching Hall, F.L.S.

*April 25.—"Nature and Origin of Coco-nut Pearls," by Sir Daniel Morris, K.C.M.G., J.P.

In addition to the above, five Informal Meetings of the Section have been held during the winter session, for the first time, and as an experiment, at 5.15 p.m. instead of 3 p.m. Very interesting short papers have been read by Mr. L. Beeching Hall and other members of the Section, and rare specimens of plants exhibited and discussed. The innovation has proved to be a great success.

In the Entomological Section.

1924.

Oct. 17.—"Pierinæ," illustrated by numerous specimens, by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.

*Nov. 21.—"Insects and Insect Life," by Mr. Joseph Neale, B.A.

1925.

Jan. 10.—At Home.

Jan. 23.—"Nymphalinæ," illustrated by numerous specimens, by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.

Feb. 20.—Exhibition of Objects of Interest.

March 20.—"A Paper on Peripatus," by Miss Helena V. Davies, B.Sc.

April 17.—Exhibition of Objects of Interest.

In the Geographical Section.

1924.

*Nov. 6.—"The Peak Region of Derbyshire," by Mr. C. Dales, M.R.Met.S.

*Nov. 26.—"Corsica," by Mrs. L. M. Ellis.

*Dec. 3.—"The Ocean," by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.

1925.

*Jan. 3.—"Reminiscences of India," by Miss E. E. Twemlow.

*Jan. 6.—"Cairo and the Nile" (Children's Lecture), by Mr. C. Lyon.

*Jan. 24.—"The Lake of Garda," by Mrs. Arthur W. Waters.

Feb. 19.—"Discussion on Atlantis," by Mr. C. Lyon and the Rev E. Bury, M.A.

*Feb. 28.—"The Hawaiian Islands," by Mrs. Greg.

*March 8.—"The Southwold Lifeboats," by Mr. Ernest R. Cooper.

*March 14.—"Villages on Ledges," by Mr. E. Dodshon, LL.B.

*April 4.—"Magdalen College and New College, Oxford," by Mr. E. Dodshon, LL.B.

*April 30.—"At Home," with a talk on Earthquakes by Mr. C. Lyon.

In the Geological Section.

1924.

*Nov. 7.—" Flint," by Mr. Henry Bury, M.A., F.L.S., F.G.S.

Dec. 11.—" The Geology of France as compared with that of England," by Mr. R. K. Cardew, B.A.

1925.

*Jan. 15.—" The China Clay Formations in Cornwall," by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.

Feb. 27.—" The Barton Beds," by Mr. St. John Burton, F.G.S., F.Z.S.

*April 21.—" Coastal Features of the Jurassic Rocks of Dorset," by Mr. St. John Burton, F.G.S., F.Z.S.

In the Microscopical Section.

1924.

Nov. 19.—Exhibition of Objects of Interest.
Dec. 16.—Do.

1925.

Jan. 10.—" At Home " (in conjunction with the Botanical Section).
Jan. 21.—Exhibition of Objects of Interest.
Feb. 18.—Do.
March 18.—Do.
April 15.—Do.
July 15.—Do.
Aug. 19.—Do.
Sept. 16.—Do.

In the Photographic and Record Section.

1924.

*Oct. 25.—" Windsor Castle," by Mr. R. Quick, F.S.A. (Scot.).

*Nov. 15.—Exhibition of coloured hand-painted Slides, by Mr. R. Y. Banks and Mr. Henry Bury, M.A., F.L.S., F.G.S.

*Dec. 6.—" The Tower of London," by Mr. R. Quick, F.S.A. (Scot.).

1925.

*Jan. 28.—Exhibition of Members' Work taken at last year's Excursions.

*April 29.—" Amateur Photographer " Prize Slides, Mr. W. Dieselhorst, A.M.I.C.E.

In the Physical Section.

1925.

Jan. 31.—" Colloids," by Mr. Henry B. Footner, B.Sc., A.I.C. Illustrated by Specimens and Experiments.

March 21.—" Some of the Rarer Metals," by Miss Marcia Penrose. Illustrated by Specimens and Experiments.

April 27.—" Rain," by Dr. Crallan, M.A., M.B., M.R.C.S.

In the Zoological Section.

1924.

*Nov. 8.—" Marine Mollusca of the Bournemouth Neighbourhood," by Mr. E. St. John Burton, F.G.S., F.Z.S.

†Dec. 12.—" A Talk on some British Birds," by Dr. S. H. Snell.

*Dec. 17.—" British Mammals," by Dr. F. G. Penrose, F.R.C.P., F.Z.S., M.B.O.U.

1925.

†March 13.—" The Birds of our Coasts and Shores," by Dr. S. H. Snell.

†Illustrated by large diagrams and cases of stuffed birds.

General Excursions and their Leaders :—

1925.

May 30.—Wookey Hole, Mr. Claude Lyon.
June 20.—Parnham and Mapperton Manor Houses, Mr. Claude Lyon.
July 25.—Broadlands, Mr. Backhouse, F.R.H.S.
Aug. 22.—Woodsford Castle, Mr. Claude Lyon.
Sept. 12.—Bath, Mr. J. R. White, M.A.

List of Sectional Excursions and their Leaders :—

1925.

March 11.—Studland, Mr. Howard Lacey, B.A. (Botanical).
April 23.—New Milton, Mr. J. Vorse (Botanical).
May 2.—Pimperne, Col. J. R. Dodd, M.D., F.R.C.S. (Archæological and Historical).
May 5.—Wimborne and Cowgrove, Mr. R. K. Cardew, B.A. (Botanical and Entomological).
May 12.—Littlesea, Mr. H. Wadlow (Botanical and Entomological).
May 20.—Tuckton Bridge, Capt. T. Griffiths (Microscopical).
May 20.—Stoborough to Ridge, Mr. Howard Lacey, B.A. (Botanical and Entomological).
May 27.—Melchet Court Gardens, Mr. Howard Lacey, B.A. (Botanical).
June 5.—Barton, Mr. St. John Burton, F.G.S., F.Z.S. (Geological).
June 6.—Exbury Gardens, Rev. C. O. S. Hatton, B.A., F.L.S. (Botanical).
June 8.—Corfe and Scotland Farm, Mr. Howard Lacey, B.A. (Botanical and Entomological).
June 13.—Chiselbury Ring and Broad Chalke Valley, Mr. W. Dieselhorst, A.M.I.C.E., and Mr. E. Dodshon, LL.B. (Archæological and Photographic).
June 18.—Pepper Box Hill, Rev. E. Wells, M.A. (Botanical and Entomological).
June 22.—Forty Members of the Botanical Section were invited to see the Rev. C. O. S. Hatton's gardens.
June 25.—Littlesea, Dr. F. G. Penrose, F.R.C.P., F.Z.S., M.B.O.U. (Zoological).
June 26.—Hurn, Mr. H. A. Garnett (Botanical).
July 2.—Shillingstone, Miss Curme (Botanical and Entomological).
July 3.—Messrs. Belben's Flour Mills, Poole, Mr. Hubert Painter, B.Sc., F.C.S., and Mr. W. J. Woodhouse, A.C.P. (Physical).
July 7.—Marlborow Deep, Rev. C. O. S. Hatton, B.A., F.L.S. (Botanical and Entomological).
July 16.—Holmsley, Mr. J. Vorse (Botanical and Entomological).
July 28.—Wimborne for Colehill, Mr. R. K. Cardew, B.A. (Botanical).
Aug. 6.—Abbotsbury, Col. J. R. Dodd, M.D., F.R.C.S. (Archæological and Historical).
Aug. 24.—Twenty Members of the Botanical Section were invited to see Compton Acres Gardens.
Aug. 29.—Woolsbarrow, Mr. R. K. Cardew, B.A. (Archæological and Historical).
Aug. 31.—Wareham to Arne, Mr. Howard Lacey, B.A. (Botanical).
Sept. 2.—New Forest, Mr. Heywood Sumner, F.S.A. (Archæological and Historical).
Sept. 3.—Workers' Excursion (Botanical Section).
Sept. 8.—Arish Mell, Mr. W. Munn Rankin, M.Sc., B.Sc. (Botanical).
Sept. 14.—Wilverley Enclosure (Fungus Foray), Mr. J. F. Rayner, F.R.H.S. M.B. Myc. Soc. (Botanical).
Sept. 21.—Goathorn, Miss S. G. Rooke (Botanical).

The Botanical Section had :—

8 Afternoon Lectures at 3 p.m.
5 Evening Meetings at 5.15 p.m.
21 Excursions.
1 At Home, in conjunction with the Microscopical Section.

Total 35 Meetings.

Of the General Lectures one on "Pre-Conquest Churches," by Mr. F. W. Ibbett, M.A., was of special interest.

Among the Sectional Lectures, those of special interest were "The Planet Mars," by Dr. W. H. Steavenson, F.R.A.S., in the Astronomical Section; "The Vegetation of Chalk Soils," by Mr. W. Munn Rankin, M.Sc., B.Sc.; Wild Plant Studies, by Mr. L. Beeching Hall, F.L.S.; "The Nature and Origin of Coco-nut Pearls," by Sir Daniel Morris, K.C.M.G., J.P., in the Botanical Section; and "Flint," by Mr. Henry Bury, M.A., F.L.S., F.G.S., in the Geological Section.

The General Excursions, five in number, were all of great interest. Of these and of some of the most attractive of the Sectional Excursions, details are given in the Proceedings pp. 37-41.

At the last Annual Meeting Mr. Hubert Painter, B.Sc., F.C.S., was unanimously elected President of the Society for 1924-25. He gave his Presidential Address on November 22, the subject being "Science and Human Welfare."

It is a pleasure to be able to state that he has kindly consented to be nominated as President for 1925-26.

The Morris Gold Medal was awarded to Mr. Heywood Sumner, F.S.A., for 1924-25, and was presented to him by Sir Daniel Morris, K.C.M.G., J.P., at the Annual Meeting.

On April 18th a Presentation was made to Mr. R. A. de Paiva on his having attained his 84th birthday. He had been Hon. Secretary of the Society for eleven years. It consisted of a purse of thirty-five guineas and an illuminated address containing the names of those who had contributed.

An interesting feature of Vol. XVI. of the Proceedings is a paper by Mr. Henry Bury, M.A., F.L.S., F.G.S., on "The Bournemouth Plateau and its Palæoliths" together with a PLAN of the Plateau.

Another item is a list of the Presidents, Vice-Presidents, Chairmen of Sections, Officers, Members of Council, and various Committees from the formation of the Society to the present time.

The Exhibition of Wild Flowers at the Lansdowne Public Library continues to be much appreciated by both residents and visitors, and the number of specimens sent for identification increases each year.

During the summer many species have been sent from distant counties, thus enabling students to examine some of our Northern flora.

As usual about 1,000 specimens have been shown, comprising trees, shrubs, flowering plants, grasses, etc.

The work has been carried out by Miss Rooke, Miss Willis and Mr. H. Wadlow.

The Wild Flower Exhibition is made use of, for educational purposes, by classes and by individual students of the locality.

Portraits of all the Presidents have been framed and are now hung on the walls at No. 39, Christchurch Road.

Mr. F. B. Taylor, B.A., who had been Editor of the " Proceedings " of the Society for five years having resigned that office, Mr. J. R. White, M.A., has kindly consented to undertake it.

The principal donations to the Society include a number of books given by various donors; a large Map of Europe as altered by the War, presented by Mr. H. F. Killick; a clock for the Lecture Room, presented by Mrs. Curme; a framed photograph of fish-scales, presented by Mrs. W. A. Willes; three cabinets of Lepidoptera, presented by Mr. E. Blanchard; the head of a stag, and shed horns of the same annually from 1902 to 1910, together with a series of photographs of the same stag: head of Chamois : a model of the Great Auk and its eggs : and four cases of stuffed birds : all presented by the Executors of the late Mr. T. A. Cotton; and 107 Lantern Slides of Bournemouth, presented by Mr. R. Y. Banks.

The Council deeply regrets the loss by death of Col. E. E. Markwick, C.B., C.B.E., F.R.A.S. He had been a Member of the Society for twenty years, and Hon. Secretary two years, and Chairman of the Astronomical Section four years. Also of the Rev. H. Shaen Solly, M.A., who had been a Member twelve years, and Chairman of the Archæological and Historical Section ten years.

The Society has suffered the loss by death of F.M. Lord Grenfell of Kilvey, G.C.B., G.C.M.G., LL.D., F.S.A., a generous donor to the Society. He had been President for two years. Also of Rev. F. A. Allen, M.A., Mr. A. E. Ball, Mrs. Cassell, Mr. W. Dale, F.S.A., Mrs. E. K. Goddard, Miss Luard, Mr. M. M. Speakman, Rev. T. W. Sturges, M.A., and Mrs. L. M. Ellis.

In conclusion, the Council desires to express its thanks to all who have presented objects of interest and use to the Society, or given lectures, or conducted excursions, and especially to owners and occupiers who have kindly permitted the Society to visit the several places of interest controlled by them.

Summary of Accounts for Year ending 30th September, 1925.

Current A/c.

RECEIPTS.	£	s.	d.	£	s.	d.
Members' Subscriptions				525	17	6
Voluntary Donations				10	13	0
Donations for New Drive—						
Medical Society ...	20	0	0			
Mr. Backhouse ...	25	0	0			
				45	0	0
Sale of Natural History of Bournemouth				1	15	0
Sale of Proceedings				1	1	0
Rent from Tenants				130	0	0
Letting of Hall				1	10	6
Donation for Library				1	10	0
Refund of Cost of Wild Flower Exhibition from Education Committee ...				1	3	6
Proceeds of Lectures and Excursions, less cost				19	9	8
Transferred from Debenture Deposit Account				50	0	0
Sundries				0	3	6
				788	3	8
Balance from last year				242	14	10
				£1030	18	6

PAYMENTS.	£	s.	d.	£	s.	d.
Rates and Taxes				82	17	9
Interest on Debentures ...	187	11	5			
Less Tax	39	17	8			
				147	13	9
Salaries, Wages, Insurance Stamps ...				116	19	4
Printing and Stationery				39	2	0
Vol. XVI. of Proceedings				51	2	0
Towards Vol. xvii. of do.				2	7	5
Postage				33	2	5
Water, Lighting, Heating				51	16	2
Subscriptions to other Societies				3	9	6
Heating Installation				108	16	0
New Drive, Fence, etc.				120	11	1
Furnishing and Maintenance				72	1	4
Insurance				9	7	0
Museum and Collections				1	3	10
Library, Papers, etc.				13	1	8
Debentures Redeemed				150	0	0
Share of Telephone Rent				3	3	0
Cost of Wild Flower Exhibition ...				1	3	6
Sundries				2	8	6
				1010	6	3
Balance at Bank				20	12	3
				£1030	18	6

Summary of Accounts for Year ending 30th September, 1925.

Deposit Debenture A/c.

RECEIPTS.	£	s.	d.	PAYMENTS.	£	s.	d.
Balance from last year	109	11	6	Transferred to Current Account	50	0	0
Interest	2	14	6	Balance on Deposit	62	6	0
	£112	6	0		£112	6	0

We have examined the above account with the Books of the Society and the Vouchers for payment and certify the same to be correct.

(Signed) BICKER & PETTITT,
Incorporated Accountants.

Bournemouth,
28th October, 1925.

C. H. BLACKETT,
Hon. Auditor.

Report of Summer Excursions, 1925.

Pimperne. An interesting excursion on May 2nd was conducted by Col. J. R. Dodd, Chairman of the Archæological Section. Driving through the beautiful Tarrant Valley, the party was met by the Rector of Pimperne, the Rev. A. Dittmer, who first showed the Church, the Norman Arches, the ancient Font and the numerous interesting historical objects in the vestry; then, proceeding to the Manor House, now the Rectory, he pointed out over the doorway the sculptured coat of arms of Great Britain and France, dating from the time of Henry VIII., and gave details of the occupation of the house by two of the wives of that monarch. From the church the party drove to the Pimperne Long Barrow, surrounded by traces of pre-historic occupation. Thence the return was made viâ Witchampton, where the recently excavated Romano-British church and cemetery were inspected.

Wookey Hole. The first General Excursion of the season took place on Saturday, May 30th, to Wookey Hole, near Wells, under the leadership of Mr. Claude Lyon and Mr. Herbert E. Balch F.S.A., the well-known Mendip cavern explorer. After visiting the spot where the waters of the river Axe emerge from their subterranean source, the ascent was made to the cave-mouth, where Mr. Balch gave an interesting explanation of the geological features of the valley and of the changes, due to the action of water, which have occurred in it in past ages. He then led the party into the recesses of the cave, traversing a distance of about a quarter of a mile by a series of passages opening into three successive lofty chambers, the proportions of which were well seen by flare lights. A very fine stalagmite was pointed out, which had evidently been formed too rapidly to admit of the formation of a corresponding stalactite. Emerging from the "Hole," the party made a short detour and then, by a sharp ascent along the edge of Ebbor Gorge, reached the crest of Mendip, from which a very wide prospect was enjoyed. The geological features of the gorge having been described, there followed a rugged descent to the bed of the gorge and the return to the village by a lower path, and so back to Wells. After a convenient interval Mr. Balch led the way to the Museum, of which he is the distinguished curator, and pointed out many interesting exhibits found in the course of his explorations. Among these were specimens of pottery dating from 300 to 100 B.C., and the tools with which they were shaped and decorated, comparing favourably with Roman pottery of a later period.

Chiselbury Ring &c., On June 13th an excursion, under the auspices of the Archæological and Photographic Sections, was conducted by Mr. W. Dieselhorst and Mr. E. Dodshon, and was packed with interest, intensified by the exposition of Dr. R. C. C. Clay, the distinguished investigator of prehistoric remains in S. Wilts. He assigned the Camp to the later Iron Age and pointed out the scarp-to-scarp banks running N. and S. of it. He regarded it as a place of refuge, trenching having revealed no trace of more permanent occupation. The enclosure comprises some 10½ acres, and the Vallum attains a height of 27ft.

From the Ring the party was led to Broadchalke, to the site of a supposed Saxon cemetery, where Dr. Clay's excavations had revealed abundant traces of a Pagan community, probably Jutes. Here he had found skeletons at varying depths, and also parts of various weapons, but no ornaments. The date was probably not later than 500 A.D.

A brief visit was next paid to the church, and to the old Rectory, the residence of Maurice Hewlett in his later years. It possesses a 14th century entrance gateway, and a charming garden by the river side with cedars and a clipped yew hedge.

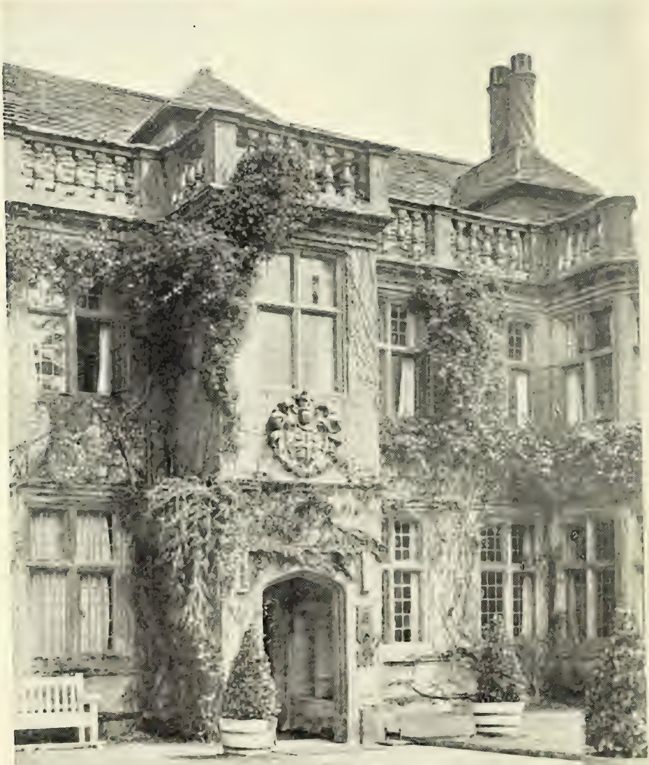
A short run of three miles brought the party to Bishopstone, where the very notable features of the church were pointed out by the Rector, the Rev. F. Raikes, who entertained the whole party hospitably on the beautiful lawn. This small cruciform church is one of the best examples of decorated architecture in Wiltshire, notably the chancel and the transepts with fine vaulted roofs. A unique structure, usually styled a " tomb cloister," abuts on the outer wall of the south transept and is a problem for experts. Near by is a beautiful priest's-door. The interior contains finely carved Spanish lacquered woodwork, and sedilia of good design.

Parnham and Mapperton. On Saturday, June 20th, a visit was paid by some 90 members to the Manor Houses of Parnham and Mapperton, by the kind permission of Mrs. Moorhouse and Mrs. Labouchere respectively.

Driving viâ Dorchester and Bridport, the party reached Parnham at 12.30, where they were met by the Rev. Prebendary G. C. Hutchings, M.A., Vicar of Beaminster, who kindly acted as guide through the principal rooms and gave a short address on the history of the families which had successively owned the property. It was originally the seat of the Strodes who became extinct about 200 years ago. The first Strode is said to have been a contemporary of the Conqueror. To them succeeded the Oglander family and others.

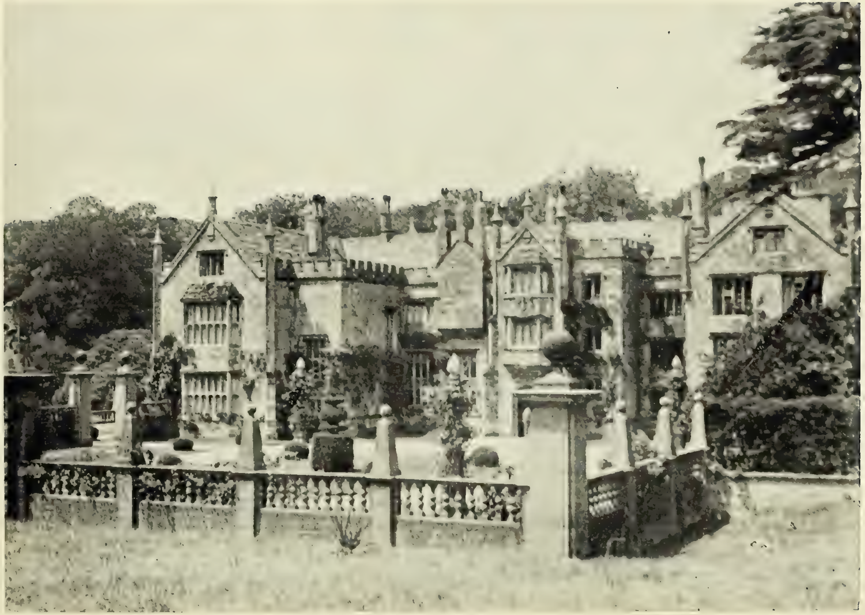
The great beauty of Parnham is the perfect Tudor style of its architecture. The principal bedroom, known as the King's

BRITISH MUSEUM
12 MAR 26
NATURAL HISTORY.



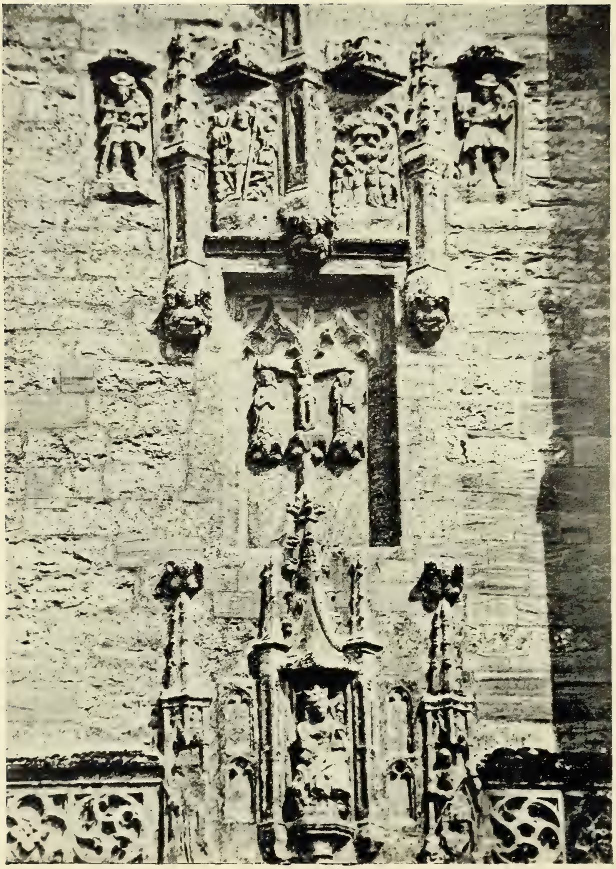
PARNHAM MANOR HOUSE.

BRITISH
MUSEUM
12 MAR 2
NATURAL
HISTORY.



MAPPERTON MANOR HOUSE.

BRITISH
MUSEUM
12 MAR 26
NATURAL
HISTORY.



BEAMINSTER CHURCH TOWER.

Room, contains a Tudor bedstead, standing on a kind of dais, and in the hall is a splendid oak screen of the time of Henry VIII.

Leaving Parnham the party drove viâ Beaminster to Mapperton, where they were received by the Vicar, Rev. A. C. Earle, and conducted through the house and garden. This house also dates from the time of the Conqueror and is mentioned in Domesday Book. In the time of Edward I. it was in the hands of the Brett family, and succeeding owners were the Morgans, the Broadrepps and the Comptons. The church makes a south wing with the house, a little detached from it, and contains some fragments of old glass.

The party then returned to Beaminster, where the Vicar gave an address on the church, pointing out some interesting carvings on the tower, and showed the old Communion Plate. Photographs of the church were taken, notably one of the tower carvings by the aid of a tele-photo lens. A copy of this was afterwards given to the Vicar, to be kept as a record of work which is rapidly decaying.

The return to Bournemouth was made viâ Maiden Newton and Dorchester.

Broadlands. By the kind permission of Colonel the Right Honourable Wilfrid Ashley, M.P., a visit was paid to Broadlands, near Romsey, on Saturday, July 25th, under the leadership of Mr. Henry Backhouse.

The house, which is beautifully situated on the River Test, is interesting as the birthplace of Viscount Palmerston in 1784 and as his residence till his death in 1865. The title thereupon became extinct, and the property descended to Lady Palmerston's grandson, Evelyn Ashley, the father of the present owner.

The trees at Broadlands are noteworthy by reason of their size and doubly so inasmuch as careful records have been made and kept, first by Lord Palmerston and then by the Ashleys, father and son. As examples may be quoted :—

i. A Cedar of Lebanon, girth in 1821, 7ft.; 1832, 9ft.; 1916, 17ft. 9½in.; 1925, 18ft. 5in.

ii. A Beech, in 1864, 11ft. 3in.; 1889, 12ft. 9in.; 1914, 14ft. 2in.; 1925, 15ft.

Among the largest trees noted were a Swamp Cypress (Taxodium distichum), 117ft. high; several London Planes, over 100ft. high; two Oriental Planes, 15ft. 10in. and 11ft. 8in. in circumference; a Cedrus deodara, 70ft. high, planted 70 years ago; an English Elm, 125ft. high, 16ft. 3in. in circumference; a Yew, 100ft. high; a Libo-Cedrus decurrens, 75ft. high; a Mulberry Tree, 50ft. high, planted in 1830; a Maidenhair Tree; a Magnolia glauca; a Japanese Umbrella tree (Seiadopitys verticillata); and the following conifers :—Thuya plicata, 90ft. high; Thuya Orientalis; Cupressus Lawsoniana; Cupressus Nootkatensis; Cupressus

Sempervirens; Tsuga Pattoniana; Tsuga Albertiana; Pseudo-Tsuga Douglasii; Pinus Insignis; Pinus Cembra; Pinus Excelsa; Pinus Sylvestris; Cedrus Libani; Cedrus Atlantica; Cedrus Atlantica glauca; Cryptomeria Japonica; and Picea Nigra.

Woodsford Castle. On August 22nd an interesting programme was carried out under the guidance of Mr. Claude Lyon. Bere Regis Church was carefully inspected on the way, but this has been frequently visited and described. Less known to most of the party was the little riverside church at Affpuddle, whose pinnacled tower is one of the most picturesque in the county. On the north wall of the chancel special attention was drawn by the Vicar to a Coat-of-Arms of the Lawrence-Washington family, which seems to show in the second quartering an early form of the "Stars and Stripes."

There followed a drive over the Great Heath, a pause being made on the broad Blagdon ridge to inspect Culpepper's Dish, a green, deep, funnel-shaped depression, some 90 yards across, the largest of a number of similar "pot-holes" scattered about the vicinity.

Driving on to Woodsford Castle, the party was received by Mrs. Lee, who kindly acted as guide and pointed out the Priest's Chamber, the Haunted Room, the huge kitchen fireplaces, the massive walls, the vast thatched roof and the beacon tower. Originally a square stronghold with a tower at each angle, the oldest part dating from the time of Edward III., it was, at a later period, partly "broken down by ordnance," and its former severity is mitigated by the growth of creepers, which add a certain charm to its appearance.

Bath. The last General Excursion of the season took place on September 12th, when 36 members paid a visit to the city of Bath, under the leadership of Mr. J. R. White.

The party was met by Councillor Vezey, to whose initiative the visit was largely due, and who had made elaborate arrangements that the many attractive features of the city should be pointed out by residents best qualified to speak of them. The Royal Literary and Scientific Institution includes a Museum rich in geological and ornithological collections. A miniature lecture on these and other exhibits was delivered by the hon. secretary, Mr. P. E. Martineau, and enhanced the interest of the subsequent inspection. Later, the Chairman of the Baths Management Committee, Councillor Hacker, showed the Pump Room, and the modern establishment replete with appliances for varied treatment, and also the Roman Baths, with the hypocausts recently discovered, and the chamber in which rises a hot spring at a temperature of 120 degrees. There are three such springs, with a combined daily output of half a million gallons.

A brief visit was next paid to the Abbey, where some account of its history was heard, and many interesting monuments noticed.

The party then passed into the hands of Councillor Cotterell, who has made a special study of the historic houses which abound in Queen Square, the Circus and the Crescent, the product of the genius of the architects Wood, father and son, and the former homes of many celebrities, literary and otherwise. A city fund is devoted to perpetuating such memories by means of mural tablets. A visit to the Assembly Rooms completed this section of the day's plans.

Very short time was left for the Botanic Gardens; but under the guidance of Councillor Smith, the Chairman of the Parks Committee, much of great interest was included in the round.

This very varied and extensive programme was broken in the most delightful way by a reception at the Guildhall by the Mayor (Alderman Chivers) and the Mayoress (Madame Sarah Grand), who entertained the whole party to luncheon. This was the crowning point of the civic hospitality which had been, from first to last, a triumph of local organisation.

Congreſs of the South-Eastern Union of Scientific Societies at Folkestone,

From June 3rd to 6th, 1925.

Report of Delegate from the B.N.S.S.

I attended the congress, which was favoured by beautiful weather. The members were entertained by the Mayor and Mayoress at a reception and tea, and the Town Hall, the Public Library, and the Museum were placed at the disposal of the Congress by the municipal authorities, as was also the Woodward Hall, adjoining the historic Parish Church.

The papers read included the following :—

(1) The Presidential Address by Sir John Russell, D.Sc., F.R.S., Director of the Rothamstead Experimental Station, Harpenden. The title was "On the place of Science in Rural Life," and the paper dealt with agricultural problems, manures, and the application of Mendelism in the improvement of cereal crops, etc.

(2) Botanical papers by Mr. Tansley, F.R.S., and Miss Lyle; the latter dealing principally with sea weeds.

(3) Geological papers by Mr. Davis and Mr. Leach, F.G.S.

(4) A general lecture by Mr. Ward Cutler, M.A., on "Life in a garden soil," dealing with earth worms, bacteria and amœbae.

(5) A general lecture on "The Genesis of the English Channel and the Creation of Romney Marsh," by Mr. C. Gilbert, F.G.S.

(6) A zoological lecture on "The Marsh Warbler in Britain," by Dr. S. Corbett.

(7) A zoological lecture by Mr. Stuart Baker, J.P., F.Z.S., M.B., on "Field Naturalists and Evolution," dealing especially with the group of cuckoos, during which he showed a marvellous collection of the eggs of these birds, from all parts of the world, and gave many interesting observations on their parasitic habits.

(8) A lecture, zoological and geological, on "The Evolution of Fishes" by Sir A. Smith Woodward, LL.D., F.R.S., F.L.S., F.G.S., in which he traced their progress from the earliest skate-like forms of the Devonian rocks down to the present era, and their differentiation into the three surviving classes, the cartilaginous, the lung fishes and the great group of the teleostomi.

(9) A paper by Mr. E. Martin, F.G.S., on "Some Controversial points in Anthropology," followed by a discussion in which I took part.

There were several excursions to various places in the neighbourhood, two of which I accompanied; (1) to the Roman site on the E. Cliff, recently discovered and excavated by Mr. Wimbolt, of Christ's Hospital. This is believed to have been the residence of the Admiral commanding the Fleet which, under the Count of the Saxon shore, was the principal defence against the Saxon marauders who harried the E. coast of Britain towards the end of the Roman occupation. The excavations have laid bare at least two large corridor houses and a very complete bath house, the discovery of the main drain from which in the face of the cliff led Mr. Wimbolt to undertake the exploration. After viewing this site, I joined a geological party in a tour of the foreshore, where many most interesting fossils were seen and described, especially on an outcrop of the gault clay which contained enormous numbers of ammonites of all sizes, many of them so impregnated with iron pyrites as to have the appearance of gold.

(2) Excursion to Dover Castle, where we were shown the great Norman Keep and the Armoury, the Roman Pharos and the Garrison church, originally a Saxon structure and largely built of Roman bricks. From Dover we drove to Barfreston Church, a fine example of Norman architecture, on which a paper was read by Mr. H. Reade.

There will be a full account of all papers and excursions in the annual report of the Congress, a copy of which will be in our library shortly. It is proposed to hold the next annual Congress at Colchester, a locality which, I believe, affords much of botanical and archæological interest.

J. R. Dodd.

Report of the Delegate of the Bournemouth Natural Science Society to the Meeting of the British Association at Southampton.

From the 26th August to the 2nd September, 1925.

The weather, on the whole, was favourable. This was important in view of the many excursions which had been arranged.

The Mayor of Southampton cordially welcomed the members of the Association at the opening of the proceedings at the Central Hall on the Wednesday evening.

As usual, the retiring President, Sir David Bruce, A.M.S., K.C.B., D.Sc., LL.D., F.R.S., introduced the new President, Prof. Horace Lamb, Sc.D., D.Sc., LL.D., F.R.S., who delivered his address.

There were two Conferences of Delegates, both of which I attended. The first was held on Thursday, the 27th of August, when Sir Daniel Hall, K.C.B., LL.D., F.R.S., President of the Conference, gave his address, which, I am sure, all present listened to with great interest, as it related to certain questions which have not been considered by local Scientific Societies. To quote Sir Daniel Hall's own words, " The questions related to the land and to the recovery, before it is too late, of the detailed agricultural history of the country, with a view to rendering it available for the purposes of education." He urged that our country schools ought to do something to use their environment in their education. Although a considerable proportion of our population is interested in the land, educationally we never seem to think of the land as such. Sir Daniel went on to indicate a direction in which valuable work of a local character can be done by local societies. They might very usefully undertake the recovery of the detailed agricultural history of a county with a view to rendering it available for the purposes of education. And when this is done we ought to have in every school, in addition to the Ordnance Survey Map, other maps, such as a Vegetation Map, a Geological Map, a Map of the Crops, and so on. In all these matters the Corresponding Societies and their members could render valuable help and the work once started would quickly spread.

Amongst the subjects discussed at this first Conference was one of considerable importance to the finances of local Scientific Societies, the question, namely, of taxation. Representations have been made to the Treasury, and it is possible that a test case may be lodged to determine the law in the matter.

At the second Conference, held on Tuesday, September 1st, a number of subjects were brought up for discussion. It was urged that the suggestion of the President in his Address to the

Conference should be brought to the notice of the Education Authorities. This was agreed to. Reference was made to the admirable work of the late Mr. William Dale, of Southampton, as a popular lecturer. There was a discussion on the destruction of bird life along our coasts by the discharge of oil into the sea from passing vessels. The matter, it was said, had already been brought to the notice of the Government by the Isle of Wight Council. And it appears that there is existing legislation against the discharge of oil by vessels.

The question of the destruction of cairns in Devonshire came up for consideration and it was suggested that the County Council should take the matter in hand.

What steps should be taken to protect rare butterflies next came up for discussion. Dr. Dixie thought that legislation would be of no use, and urged that the best course to pursue would be to educate Public Opinion.

The matter of the scientific investigation of Kent's Cavern near Torquay, was then brought up. The Cave is private property, and it was suggested that the owner should be approached to gain his consent to such investigation. This was agreed to.

Finally, there was a discussion on broadcasting. Does it affect the membership of local Societies? The consensus of opinion seemed to be that it did not. Some of the Delegates, indeed, were of the opinion that it helped their Societies. They thought that the broadcasting of scientific lectures might awaken an interest among some of the listeners and induce them to join their local Society in order to gain further information. A suggestion was made and generally approved that the B.B.C. should be urged to provide capable lecturers to give interesting talks on scientific subjects of local interest. This would probably result in our Societies being asked by the B.B.C. to suggest such lecturer.

CLAUDE LYON.

Report of the Archæological and Historical Section.

The Section sustained an irreparable loss in the death of the Rev. H. Shaen Solly, who had been its Chairman for ten years, and whose genial presence and wide knowledge of Archæology will be much missed. Lectures and Excursions are noted elsewhere in this volume.

Report of the Botanical Section.

The Section has had a very successful season. The Winter Lectures were interesting and well attended. The Summer Excursions were well patronised, and, if on a few occasions rain rather interfered with the comfort of the party, glorious weather and lovely scenery on other days amply made amends.

The regular exhibition of Wild Flowers at the Public Library was (as usual) much appreciated by visitors from all parts of the country.

At the suggestion of Mr. L. Beeching Hall, informal meetings, chiefly for the benefit of working members, were held once a month at 5.15 p.m.; the innovation proved a great success.

As has been the case for the last two years, several alien plants and other rarities have been collected by hard-working members, as the following list will prove :—

By Miss Rooke :

—	*Lavatera cashmiriana.* Camb.
396	*Coronella varia.* L.
776	*Sambucus nigra, v. laciniata.* L.
—	*Erigeron strigosum.* Muhl.
1953	*Bromus maximus, forma Desp.*
—	*Ricciella fluitans.* L. (*Hepatic.*)

By Mr. Wadlow :

—	*Cicer arietinum.* L.
—	*Cannabis sativa.* L.
1381	*Illecebrum verticillatum.* L.
—	*Ambrosia artemisiaefolia.* L.
826	*Erigeron canadense.* L.

(The last two in Dorset.)

By Surg.-Capt. Borrett, R.N. :

An abnormal form of *Erica cinerea.* Owing to the development of a profusion of coloured bracts, it is termed *E.c. form bracteomania. Penzig.*

All these have been identified at Kew.

Report of the Photographic and Record Section.

The dark room at 39, Christchurch Road, has now been put in perfect order, and is fitted with an automatic enlarger which will enable any member to make enlargements, and lantern slides by reduction from plates or films, half-plates or less.

A full complement of dishes and measures is at the disposal of members for developing and printing. The enlarger, dark room lamp, etc., are fitted with electric lamps ready for use.

Library Report.

The Hon. Librarian found it necessary to provide more shelves for the numerous volumes which have been added to the Library, either by presentation or by purchase, since the last Report. The matter of providing still more space will soon have to be considered.

Among the donors, to all of whom the Society owes its thanks, are :—

Mr. Henry Backhouse, F.R.H.S.
The late Mrs. Charsley
Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.
Mrs. Curme
Col. J. R. Dodd, M.D., F.R.C.S., A.M.S.
Mr. E. Dodshon, LL.B.
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The Executors of the late F. M. Lord Grenfell
Rev. Prof. G. Henslow, M.A., F.L.S., F.G.S.
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Mr. R. Vowell Sherring, F.L.S.
Miss A. Smith
Dr. H. Smith, M.A.
Mr. Heywood Sumner, F.S.A.
Mr. F. B. Taylor, B.A.
Mrs. Waters
Miss Wetherell

The following volumes were purchased :—

"The Origin of Continents," by Alfred Wegener (translated from the German).
"Silent Highways of the Jungle," by M. Dyott.
Six volumes chiefly of Natural History, by W. H. Hudson.
Flora of Bournemouth, 1919 Edition, by Rev. E. F. Linton.
"The Nature of Things," by Sir William Bragge.
British Flowering Plants, by Lord Avebury.
Birds of the British Isles, 2 volumes, by T. A. Coward.
Guide to Greek and Roman Life (British Museum).
Guide to Maya Sculptures (British Museum).
Flore de la France (in French), by H. Coste, 3 volumes.

Museum Report.

The Collections are now displayed in three rooms at 39, Christchurch Road.

The Archæological Room (No. 18, 1st Floor) contains a considerable collection of Egyptian antiquities, a collection of flint implements, and also miscellaneous specimens of local and other antiquities. The room is adorned by a beautiful frieze illustrating New Forest pottery, most kindly painted for the Society by Mr. Heywood Sumner.

The Botanical Room (No. 15, 1st Floor) contains a fine Herbarium of British plants, the collection of plants from the Isle of Purbeck bequeathed to the Society by the late Mr. C. B. Green, and also a number of botanical specimens from all parts of the world.

The Museum proper (ground Floor) contains a large number of specimens of all kinds, amongst which the following are perhaps the most noteworthy :—

(i) The Dent collection of Barton Fossils, purchased by the Society some years ago; this is one of the best collections of Barton fossils in existence, and has just been put in order and re-named by Mr. E. St. John Burton.

(ii) The Batley collection of Birds' Eggs, a large variety , both British and foreign; the former are now being arranged in a separate case by Mr. Howard Lacey.

(iii) The Crallan collection of British Lepidoptera practically complete; presented by Dr. G. E. J. Crallan.

(iv) A considerable number of specimens of leaf impressions from the Bournemouth Beds; at present we have been unable to find any member competent and willing to arrange and name these.

(v) A general collection of Marine Shells, named and arranged by Mr. J. E. Edwards.

Among the more recent donations are a collection of British Lepidoptera, in three cabinets, made by Mr. E. Blanchard and presented by his son : and a most interesting series of the antlers of a Red Deer shed by it in ten successive years, presented by the Executors of the late Mr. J. A. Cotton.

Members can obtain admission to any part of the Museum on application to the caretaker. Anyone desiring to remove any of the specimens from its case for the purpose of study should apply to the Curator.

Presentation to Mr. de Paiva, Saturday, April 18th.

A crowded audience assembled at this very pleasant function, to testify their esteem and affection for the recipient and their appreciation of the devoted service which he has rendered to the Society for the past 11 years. The birthday gift was a cheque, accompanied by an illuminated address containing the names of subscribers, which ran as follows :—

Bournemouth Natural Science Society.

Rawdon Augustus de Paiva, Esq.

" We as members of the Bournemouth Natural Science Society offer you our very hearty congratulations on having celebrated your 84th birthday on the 10th of this month, and desire to express our high appreciation of the way in which you have conducted the business of this Society since your election as Hon. Secretary just over 11 years ago. Your work has been done with a thoroughness which, while often involving much labour and self-sacrifice on your part, has been of inestimable benefit to the Society, and with a courtesy and good-will that have won for you the regard and esteem of all members. We ask your acceptance of the accompanying gift and trust we may long have the advantage of your services. (Signed) Hubert Painter, President, April 18th, 1925."

The unanimous feeling of members of the Society was expressed by the President, who made the presentation and wished Mr. de Paiva " many happy returns "; by the Chairman of the Council, Mr. J. H. Ralph Smythe, who was unable to be present in person; by Sir Daniel Morris, who recalled the misgivings felt by some on the appointment 11 years ago of a septuagenarian to such an onerous post; by Dr. Crallan, who drew attention to a compilation by Mr. de Paiva of a history of the Society which gives an account of every Paper read and every excursion undertaken since its formation, as well as a list of members who had held any kind of office; by Mr. J. R. White, who alluded to the careful organisation of excursions; and by Miss M. F. Hellyar, in connection with Mr. de Paiva's cordial reception of new members.

In reply, Mr. de Paiva accepted with the keenest pleasure and gratitude the gifts and the kind expressions of feeling accompanying them, as a recognition of services which had been with him a labour of love.

Presidential Address.

SATURDAY, OCTOBER 17TH, 1925.

"Speculations and Reflections on the Origin and Present Position of Natural Science."

HUBERT PAINTER.

Ladies and Gentlemen,

My first words must be words of thanks to my fellow-members of the Society for the great honour done to me in re-electing me to the Presidency. In accepting the honour, which I did with gratitude, I necessarily accepted the entailed responsibility, and this I did with trepidation.

A Presidential Address should, I conceive, differ from a lecture or address to a particular section by having a wider outlook and in dealing with a subject-matter of interest to the members generally, although it is inevitable that the voice of the President will have a sectional accent indicating the province of the wide realm of Science in which his own thoughts habitually dwell. But there is a danger attending any attempt to adopt the course of which I have spoken, the danger of attaining breadth by sacrificing depth and of inundating a wide area with a shallow flood of obvious truisms and stale platitudes.

In my address of last year I spoke of Science and Human Welfare and attempted to show that Science has made many and important contributions to the well-being of humanity, but granted that in making these contributions Science has often been assisted by non-scientific traditions and skills and by qualities belonging to the moral rather than the intellectual side of our complex nature. Further, I admitted that some of what may be called the by-products of Science have an injurious rather than a beneficial action on society. This afternoon I am about to put before you some speculations on the origins of Science and a few remarks on its present position.

On the occasion to which I have referred I ventured to define a Science as a body of exact and systematically organised knowledge about some special subject-matter and Science in general as the whole of which each of the special Sciences is a part.

Such definition will, perhaps, serve to characterise Sciences in their fully formed state but afford little guidance in speculations as to their origin. Take, for example, the case of Astronomy which is now, and has long been, a true Science. The necessary body of exact and systematically organised knowledge was, however, no instantaneous creation but was slowly and painfully built up. Inexact observations must have preceded exact ones, in fact the word " exact " has, in this connection, no fixed meaning. The limits of exactitude constantly vary. As instruments of greater and greater degrees of precision were devised and employed in making observations, errors, which at one time would seem negligibly small, would, at a later one, be considered insufferably great. Thus, in the case of each of the several Sciences the volume of the facts known, their degree of accuracy and the extent of their articulation into an organised body of knowledge, would gradually increase, and there is no infallible criterion by which we may decide at what precise stage a Science, in our sense, may be said to emerge. The construction of a Science requires the expenditure of an immense amount of human thought and human labour, and if we enquire what were and still are the motives that caused their labour to be cheerfully undertaken we shall find that they are two in number. That is, knowledge may be pursued for the sake of attaining some other end or ends which its possession would secure, or it may be pursued for the sake of the knowledge itself. This may be exemplified by the case of Astronomy. The alternations of day and night occur at intervals so short that sunset and sunrise would from the first be taken for granted, but it would be somewhat otherwise with the succession of the seasons. Some of us will remember that a summer in childhood seemed an almost unending period and that it was not, as in maturer years, shadowed by our knowledge of the inevitable approach of autumn and winter. I think it must have been somewhat the same in the childhood of the race. Whether this be so or not it is clear that some rudimentary knowledge of what afterwards became the Science of Astronomy would have been of the greatest use to primitive man, were he hunter, shepherd, or cultivator of crops. Without it no form, however crude, of almanac or calendar would have been possible, and it is thus easily seen that very practical utilitarian motives would lead to the careful observation of the apparent movements of sun, moon and stars. There would not, at first, have been the clear distinction between astronomy and meteorology that we can so readily draw now. Some power of foretelling weather must always have been valuable, and, in the most ancient times, the predictions of the venerable patriarch of the tribe who had acquired reputation as a weather-prophet would have been listened to with much the same attention as is given to the weather forecasts which we read in our morning papers or hear through the agency of the British Broadcasting Company. Some division of labour and specialisation of function doubtless began very early, and a tribe would benefit by an arrangement which relieved one or more of its members of the need for spending the whole of their time in seeking food for their own use, so that they might devote the leisure so obtained to a closer study of the seasons and the weather. Thus what we should call the Endowment of Research may have arisen in very early times. Power of prediction and actual personal control might easily be confused, and the primitive specialist in star and weather lore would, in many cases, get credited with magical powers of influencing the course of nature. Thus, perhaps, arose the class of magicians, medicine-men and rain-makers of which representatives are found in so many primitive societies. Other Sciences may, in our speculations, be traced back in like manner to their first beginnings in attempts to meet practical difficulties and obtain material advantages.

For example, Botany, the study of plants, would begin in the necessity for distinguishing between the wholesome and edible on the one hand and the poisonous or unwholesome on the other. Thus the annual fungus-foray of our Society is, perhaps, a modern representative of the very earliest beginnings of the glorious Science of Botany. When sheep and cattle began to be kept there would be need to know what plants were suitable for their food, and, when the beginnings of agriculture arose, it would be necessary to make a still more detailed study of the plants that were cultivated. Again, it would be found that some plants, although not suited for food in health, might be used as medicines in sickness, and thus arose another great reason for increasing knowledge of the vegetable world.

Zoology, the other great department of Biology, probably began in much the same way. The beasts of prey, that would willingly make meals of members of the tribe, would be studied with a view to fighting them off or destroying them. It would be important to learn something of their habits and something of their bodily structure, so that it might be known where the arrow should be aimed or the flint-tipped spear thrust in with the best chance of killing or disabling them. Not less important would it be to know as much as possible about the animals hunted or trapped to furnish food or skins. Then poisonous reptiles and insects would engage attention, and, besides all this, the domesticated animals would be studied with special care. The more that was known about sheep, goats and cattle, kept for their flesh or their milk, the better would it be for the food-supply of the tribe.

The knowledge thus gradually acquired and handed down from generation to generation by oral tradition was not yet properly scientific, but it formed the raw material from which the beginnings of true Science were, in later ages, to emerge.

In like manner the imperial Science of Mathematics had its lowly origin in primitive necessities. Counting the obviously discrete and measuring the apparently continuous, are the foundation of all Mathematics, and some power of doing these things would be required for dividing the joint bag of a hunting party, and still more imperatively needed for the beginning of barter. As we are dealing in speculations and there is little chance of our speculations being either confirmed or confuted, we may guess that out of barter may have arisen the important concept of a unit of value in terms of which different commodities could be reckoned. Suppose that such objects as flint spear-heads, wolf-skins, carcases of wild pigs, glistening pebbles, nuts, curiously shaped or tinted shells and so on, have to be exchanged. The exchange will become enormously more easy when the idea has been hit upon that each of these various articles is exchangeable for an appropriate number of the eggs of a certain bird. When this has been done men will act on, although they will not formulate, the axiom that articles that are exchangeable for equal numbers of the eggs of the long-tailed blue-bird are exchangeable for each other.

We have now seen how the hard necessities of life drove our ancestors to begin accumulating knowledge, the knowledge so acquired being afterwards capable of articulation and synthesis into the rudiments of Science. We must now glance at the second of the two roots which nourish the tree of Science, namely, the disinterested desire for knowledge for its own sake. This root derives its nourishment from the deep sub-soil of the instinctive basis of human nature, that basis to which recent Psychology ascribes so much importance. The first and chief of the instincts prompting to the acquisition of knowledge is the instinct of curiosity, and with this co-operates, in varying degrees according to individual peculiarities, the instinct of construction. This primarily urges to actual material construction, to making something, whether it be the building of a house or the knitting of a jumper. Probably the same fundamental instinct is at work in the urge which a Sherlock Holmes feels towards constructing a theory explaining the commission of a crime, an Einstein in his attempts to construct a theory of gravitation or a Spinoza to frame a complete system of philosophy.

Passing from those far off days about which we may speculate at will, we note that all the great continents show traces of ancient civilisations of which history can tell us little or nothing, but which, judging from their architectural and other remains, must have reached a relatively high level. Where there was a great development of the practical and, in some cases, of the fine arts we infer that there must have been some corresponding growth of scientific knowledge, and we know that in ancient Egypt, Assyria and elsewhere Mathematics, Mechanics and Astronomy attained no inconsiderable proportions. Much, no doubt, will yet be discovered concerning these ancient civilisations, much has already been discovered and few enquiries are more fascinating. I am incompetent even to summarise the main results that have thus far been obtained, and, if I had the necessary knowledge, I should not have time to do so now. We may, however, glance for a few minutes at the Science of Greece, because our own culture is, in many ways, continuous with that of the Greeks, and some parts, at least, of the foundations which they so well and truly laid remain to the present day supporting the splendid structure of modern Science. For this purpose I shall give a few quotations from a book of great interest with which many of you are probably well acquainted, called the "Legacy of Greece" and consisting of twelve essays by leading specialists. In the section dealing with Mathematics and Astronomy Sir T. L. Heath says: "When we think of the debt which mankind owes to the Greeks, we are apt to think too exclusively of the masterpieces in literature and art which they have left us. But the Greek genius was many-sided; the Greek, with his insatiable love of knowledge, his determination to see things as they are and to see them whole, his burning desire to be able to give a rational explanation of everything in heaven and earth, was just as irresistibly driven to natural science, mathematics and exact reasoning in general, or logic." "Mathematics is a Greek science. So far as pure geometry is concerned, the mathematician's technical equipment is almost wholly Greek. The Greeks laid down the principles, fixed the terminology and invented the methods *ab initio;* moreover they did this with such certainty that in the centuries which have since elapsed there has been no need to reconstruct, still less to reject as unsound, any essential part of their doctrine."

The foundation upon which the magnificent structure of Greek Geometry was built was the Egyptian Geometry brought to Greece by Thales about 600 B.C. This Egyptian Geometry arose from practical needs. The revenue was derived from the taxation of landed property, hence the area of the various holdings had to be ascertained so that assessment could be made. The periodical flooding due to the Nile rendered it impossible to have fields permanently marked off by hedges or walls as are our English fields. This, in spite of the practical inconveniences entailed, must have assisted the formation of the abstract conception of area and of the line as the boundary of an area, having in itself no breadth such as physical boundaries like walls, hedges or ditches must necessarily have. From papyri of about 1700 B.C. it appears that the Egyptians had practical rules for the mensuration of squares, triangles, trapezia, etc., and that they could also estimate the cubic contents of measures of corn and the like of different shapes. From such comparatively crude beginnings truly scientific Geometry was evolved under the guidance of the Greek spirit incarnated in a succession of great mathematicians. Euclid wrote his Elements in thirteen books about 300 B.C. Sir T. L. Heath says of this that "No work, presumably, except the Bible, has had such a reign, and future generations will come back to it again and again as they tire of the variegated substitutes for it and the confusion resulting from their bewildering multiplicity." Not only Elementary Geometry but Conic Sections and other branches of Mathematics were treated of by Euclid and his great predecessors and successors. Trigonometry, both plane and spherical, had reached a considerable development before 100 A.D., and the systematic use of algebraical symbols first appears in the works of Diophantus of Alexandria about 250 A.D. although the beginnings of Algebra can be traced back many centuries earlier. The collection of problems due to Diophantus includes such questions as this—" To find four numbers such that the square of the sum plus or minus any one of the numbers is a square." As regards Astronomy, Heraclides of Pontus, a pupil of Plato, declared that the earth rotated on its axis once in twenty-four hours and that Mercury and Venus revolved round the sun. Aristarchus also anticipated Copernicus by his hypothesis that the sun is at rest and that the earth and other planets revolve about it in circles. Eratosthenes calculated the dimensions of the earth, and his estimate of its diameter (7,850 miles) differs by less than two-thirds of one per cent. from what is now considered the true mean diameter. The barest mention of the great name of Archimedes recalls his discoveries in Hydrostatics, a Science which he founded and developed to an amazing extent although this was only a part of his contribution to pure and applied Mathematics. I will only mention that he found the ratio of the circumference of a circle to its diameter to lie between 3 10/71 and 3 1/7.

When we pass from Mathematics and Astronomy to other Sciences, especially to the biological ones, we find evidence of much technical knowledge, useful for, and acquired in connection with, special arts, crafts and trades; but little of that organisation and systematisation which distinguish true Science and can only arise when knowledge is sought for love and not for what it will bring. This is, at any rate, true till the time of Aristotle. Professor D'Arcy W. Thompson thinks that it was this great man who broke the tradition that, to use modern slang, it was not " the thing " to trouble about what we call Natural History. That was for farmers, huntsmen, fishermen and the lower and lower-middle classes generally. But Aristotle, says Professor Thompson, was the first of Greek philosophers and gentlemen to see that the facts of Natural History were good to know and worthy to be told. He quotes this passage: " The glory, doubtless, of the heavenly bodies fills us with more delight than the contemplation of these lowly things; for the sun and stars are born not, neither do they decay, but are eternal and divine. But the heavens are high and afar off, and of celestial things the knowledge that our senses give is scanty and dim. The living creatures, on the other hand, are at our door, and if we so desire it we may gain ample and certain knowledge of each and all. We take pleasure in the beauty of a statue, shall not then the living fill us with delight? and all the more if in the spirit of philosophy we search for causes and recognise the evidences of design. Then will nature's purpose and her deep-seated laws be everywhere revealed, all tending in her multitudinous work to some form or another of the Beautiful." As illustrations of the variety and depth of Aristotle's knowledge of animals, Professor Thompson takes the cases of Cuttle-fish, concerning which his knowledge was specially minute; fishes, of which Aristotle gives a history of habits, food, migrations, times and ways of spawning and anatomical details; and of bees, wasps and other insects.

In several cases Aristotle was acquainted with facts afterwards lost sight of for many centuries and only re-discovered in quite recent times. For example, Aristotle seems to have known by sight and name the little larva of the eel, whose discovery and identification is one of the triumphs of modern investigation.

Enough has been said to show that Science in the fullest sense existed some centuries B.C. and that we must not suppose that it arose only just before our own time. Nevertheless it is doubtless true that there was a long period in which it drooped and languished, in which original investigation almost entirely ceased and the few students who still had leisure and inclination to pursue it did little but read in faulty translations the fragments that were still accessible of the works of the mighty Greeks. To the theory that the Pope and the Emperor held a divinely appointed supremacy on this planet, the one in matters spiritual and the other in matters temporal, there was a kind of doublet with regard to the intellectual world. Aristotle, called by eminence the Philosopher, was regarded as a kind of Emperor in matters philosophical and scientific. The investigator, if any were bold enough to investigate, had to take care that he came to no conclusion that was not in accordance with the formularies and pronouncements of the Church or that called in question anything that had been, or was thought to have been, laid down by Aristotle. In such conditions Science could not make progress. Again, the widespread and long continued belief in magic and witchcraft was very effective in preventing observation and experiment. If, for example, an entomological enthusiast were found studying the habits of wasps, it was only too likely that he would be charged with holding communion with evil spirits in the form of these insects, just as the pet cat of many a poor old woman was regarded as her familiar spirit. Buckle in his History of Civilisation says, in reference to the establishment of the Royal Society:—" It is well worthy of remark that the charter now first granted to this celebrated institution declares that its object is the extension of natural knowledge as opposed to that which is supernatural." In a footnote he quotes as follows from the " Life of Sir Humphry Davy " by Dr. Paris. " The charter of the Royal Society states that it was established for the improvement of Natural Science. This epithet " natural " was originally intended to imply a meaning of which very few persons, I believe, are aware. At the period of the establishment of the Society the arts of witchcraft and divination were very extensively encouraged; and the word natural was therefore introduced in contradistinction to supernatural." Dr. Paris seems to have had curious ideas of encouragement. When we remember the prickings, swimmings, wakings and burnings of witches we should scarcely speak now of witchcraft being extensively encouraged.

Here I may, perhaps, be permitted to make a digression. There have sometimes been discussions among ourselves as to the exact significance of the word " Natural " in the title of our

Society, and the question has been raised as to whether this or the other subject properly comes within our sphere.

Whatever the word may mean there can be little doubt that when our Society was established in 1903 it took over the title from its predecessor, the Bournemouth Society of Natural Science. I was present at the meeting at which the Society came into being and I remember that some wished it to be called " The Bournemouth, Boscombe and District Society of Natural Science," but there was no discussion about the words " Natural Science." I was not a member of the earlier Society, founded in 1883, and I cannot speak with authority as to why its founders chose the expression " Natural Science," but I guess that " Natural History Society " was first thought of, this being a very common designation of local societies of the kind, and then that Science was substituted for History so that a wider field should be open and subjects not coming under Natural History be admissible.

I must now return from the by-path into which I have wandered.

Having ventured on some speculations concerning the origin of Science and glanced at the state it had attained before twilight, deepening into night, enveloped the ancient civilisation, I make no attempt to speak of the re-birth of Science, but proceed at once to offer some remarks on the present position of the Sciences. These will be somewhat desultory and, for the most part, of a very general character.

One striking feature of the present day is the great profusion and variety of instruments and apparatus available for scientific work. A short time ago the two-hundred-and-fiftieth anniversary of the foundation of Greenwich Observatory was celebrated, and attention was drawn to the many additions to the equipment of astronomical research since the appointment of the first Astronomer Royal in 1675. It is not only that the main instrument, the telescope, has been improved but the spectroscope, the photographic camera and the interferometer have made available quite new ways of attacking astronomical problems.

In other departments of investigation similar advances have been made. For example, the ultra-microscope has brought within the field of observation particles far below the limits of visibility in the most powerful of ordinary microscopes, and the mass-spectroscope provides a means by which the very chemical atoms themselves can be, so to speak, sorted out according to their weights. It will always remain true that we are, in the last resort, dependent on our senses for our data, but the use of instruments increases enormously the range of sense perception. It also enables one sense to give us information about phenomena that primarily make their appeal to another. A single familiar instance will suffice. If we wish to determine which of two quantities of water has the higher temperature we can do so by dipping a finger first into one and then into the other, provided that the difference is sufficiently great and that neither lot of water is too hot or too cold. If we use a thermometer, the eye replaces the temperature sense, and both delicacy of discrimination of small differences and the range of its application are greatly increased. But we do not stop here. Electro-magnetic waves of less than a certain frequency make no appeal whatever to our senses. But with the aid of an apparatus which can be bought for quite a small sum there is a transmutation of energy and we hear 6 BM calling. Perhaps there are phenomena of which at present we have no idea whatsoever that may one day be brought within the reach of our senses. We may thus open another window into the unknown vastness and learn secrets hidden from the innumerable generations of our forefathers.

Another characteristic of present-day Science is its high degree of specialisation.

On the eastern side of a brick pillar in the Talbot Road marking the boundary between Hampshire and Dorset, may still be seen the words "Parish of Holdenhurst." With the growth of Bournemouth it has been found necessary to carve up the great area of Holdenhurst into more and more parishes, and we now have those of St. Peter, St. James, St. John and so on through no inconsiderable proportion of the whole number of Saints in the Calendar. In like manner we find that a Science such as Chemistry is not only now divided into Inorganic, Organic, Physical, Analytical and so on, but that many of these divisions have to be still farther divided and sub-divided.

So far from a student of the present day taking all knowledge to be his province he finds ample scope for his energies in one sub-department of a department of one of the main branches of Science. While this is true it is equally true that the boundaries between the main divisions of Science are getting blurred. Between Physics and Physical Chemistry who can clearly distinguish? Does it not appear as if Physics would swallow up Chemistry altogether? Nay, the Relativist in Eddington's well known Prologue says that the laws of Geometry, or of what he calls Natural Geometry, are just as much laws of Physics as those of Electromagnetism, and Eddington, speaking in his own name, says in the last chapter of "Space, Time and Gravitation"—"As the geometry became more complex, the physics became simpler until finally it almost appears that the physics has been absorbed into the geometry." It may be true that Physics, when it has swallowed Chemistry, will itself be swallowed by Geometry, but such prophecies do not always come true. For example, the ultimate reducibility of the laws of Biology to those of Physics and Mechanics is less often and less confidently proclaimed than in the latter part of the XIXth Century.

The words of Professor Eddington which I quoted just now are an indication of an important characteristic of the present condition of Science. I mean the thorough-going examination of fundamental concepts such as those of space, time and matter. It is not always realised how widely the conceptual space of Euclid's Elements differs from space as it seems to be. Euclidean space has been purged of what to our senses appears the absolute distinction between up and down, between the vertical and the two horizontal directions and between the near and the remote. Until lately no one doubted that this Euclidean space was the only true space for Natural Science. Mathematicians might indeed play with the ideas of space curvature and of spaces having more than the three familiar dimensions, and metaphysicians might discuss whether space and time, or either of them, have an objective character or whether they are forms of thought, but it was considered that Physical Science, as such, had no interest in the matter. A change has taken place. Such concepts as that of a continuum in which time supplies a fourth dimension to the three of space are being seriously applied to scientific problems.

The great advance in our knowledge of the intimate structure of matter that has been effected through the application of physical methods of experiment and mathematical methods of interpretation, is perhaps the most impressive of all the scientific triumphs of the day. I hope to be pardoned if I devote a part of the time that remains to this subject, beginning with a few words concerning Electricity since that mysterious entity is so closely bound up with what we usually mean by matter. I say " usually mean by matter " because the word is by no means free from ambiguity. In what immediately follows I shall use the word matter in the sense in which a chemist employs it. Thales of Miletus knew that amber, after being rubbed with wool, would pick up bits of straw and the like. No one seems to have paid any particular attention to this curious scrap of knowledge for more than two thousand years. At last it was taken up by Dr. William Gilbert, physician to Queen Elizabeth and President of the College of Physicians. He repeated the original experiment, made many others and coined the word electric, derived from the Greek word for amber, to denote a whole class of phenomena of which the attraction of rubbed amber for straw appeared to be typical. He studied Magnetism as well as what we, following him, call Electricity, and his chief work on the subject was published a year or two before Shakespeare wrote the well-known lines in Hamlet—

> " There are more things in heaven and earth, Horatio,
> Than are dreamt of in our philosophy."

Since Gilbert's days Electricity has continued to be an important subject of study and some of our very greatest scientific men have devoted their best energies to the endeavour to elucidate its mysteries.

This is not the time to sketch the successive stages in the development of the Science, but I may mention that Clerk Maxwell's great work on Electricity and Magnetism appeared rather more than fifty years ago and electrical theory had by that time reached a very advanced stage. One striking feature in Clerk Maxwell's system was the electro-magnetic theory of Light which went far to annex the ancient domain of Optics to the ever-expanding empire of the parvenu Science of Electricity. But at this time electricity, recognised as such, played a comparatively minor part in the lives of ordinary people. Experiments were shown to the public at the Royal Institution and repeated on a less impressive scale in provincial Mechanics' Institutes, and the like, but few guessed what a future was before this remarkable agency. Compare the state of affairs then with that existing at the present day. Think of our electrified railways, our tram-cars, our electric lighting, heating, cooking, ironing and hair-waving, the telegraph and telephone and all the wonders of broadcasting. Consider what large numbers of important chemicals are made by electrical methods and the part played in the Great War by the nitric acid electrically produced from the nitrogen of the air, and the high-explosives in the manufacture of which this nitric acid was employed. The increased dominion of man over his environment by the harnessing of this agency, once scarcely known except in the awe-inspiring lightning, can only be compared with that increase of this dominion which in ages before all history followed from the domestication of Fire, that admirable and faithful servant, but cruelly tyrannic master.

But this is not all or nearly all. In the theoretic sphere the importance of Electricity is even greater than in the domain of practice. Clerk Maxwell gave, as I have said, an electromagnetic theory of light and recent years have seen the development of an electric theory of matter.

The old controversy as to the continuous or discontinuous nature of matter seems definitely closed in favour of the hypothesis of discontinuity, that is, that matter is composed of atoms. We recognise a certain number of chemical elements each of which may be regarded as in some sense a fundamentally distinct kind of matter, the atoms of each element retaining their individuality in all the changes and chances of chemical transformations. John Dalton, the founder of what we now call the atomic theory, did not originate either the name or the concept of the atom. Ancient Greek speculators were familiar with the idea of ultimate indivisible particles. What Dalton did was to make what had hitherto been a somewhat sterile hypothesis into a remarkably fruitful theory by his suggestion that there were as many kinds of atoms as chemical elements, and that all the atoms of any one element were alike and characterised by each possessing a definite mass or weight. Before Dalton atoms had been regarded either as being all alike or else as having individual and unclassifiable differences of size and shape. Newton described atoms as " solid, hard, impenetrable movable particles, incomparably harder than any porous body compounded of them, even so very hard as never to break or wear in pieces.'' I suppose that it was some such view that all of us who began to study Chemistry at any time in the last century would have had to confess that we held. But the notion of atoms in the sense of irreducible minima did not remain confined to what is commonly called matter. It was at first suspected and afterwards established that Electricity also had an ultimately atomic structure, that is, that every positive charge and every negative charge was an integral multiple of an indivisible unit charge of positive or negative electricity respectively. Moreover it was found that the negative unit, for which the name electron was adopted, could in some circumstances be detached from matter and exist as a particle vastly smaller and some one-thousand-eight-hundred and thirty times lighter than the lightest of all known chemical atoms, that of Hydrogen. This atom of Hydrogen, it now seems certain, is not the absolutely solid and absolutely hard particle that we once thought it was, but a system consisting of an electron revolving around a proton, or unit of positive electricity, the dimensions of each of them being very minute as compared with the distance between them. On essentially similar, but progressively more complicated plans, the atoms of all the elements are constructed, so that it would seem that there are only two things, electrons and protons, out of which all material things are made. A detailed account of these views would not be appropriately given to-day, rather should it be reserved for some meeting of the Physical section. On this occasion I only wish to point out that the new electrical theory of the constitution of matter gives us a kind of mental picture of the Universe and what it contains, differing almost as widely from that of thirty years ago as the picture which Chemistry then gave us differed from the ordinary view of immediate sense perception. For example, that piece of so solid-seeming steel is not really solid or continuous, but is mainly empty space in which protons and electrons whirl in an everlasting dance with speeds to which that of a comet passing the perihelion position is a mere snail's crawl, and these particles are scattered through the space which we say is occupied by the metal as sparsely in proportion to their size as are the planets of the sun through the wide extent of the solar system. These views of the constitution of atoms amount to an explanation of matter in terms of electricity, and our instinctive craving for the simplification of the complex is to some extent satisfied. The ninety-two elements of the chemist turn out to be cunningly devised arrangements of only two irreducibles so that, in the etymological sense of the word element, there are only two elements.

But the explanation which reduces matter to electricity does not bring complete satisfaction. Many years ago I made a determined effort to formulate as clearly as possible what I really meant when I spoke or thought of matter, and I concluded that it was of something which could be felt, or which was continuous in kind with that which could be felt, between the finger and thumb.

In other words the central core of our, or at least of my own, concept of matter is a resultant or residuum of innumerable sense-experiences of resistance.

As we have no special sense-organ for electricity as we have for hard particles or for light or sound, we are apt to feel that when we are told that matter is but a manifestation of electricity we are being given an interpretation of the little known by that which is even less known.

I strongly suspect that when people who have made no study of Physics and Chemistry hear or read that the atoms of chemical elements are not minute solid bodies but intricate arrangements of electrical charges, each bearing a strong resemblance to a solar system, they do not realise that this is not a statement about certain specimens in a laboratory but about all material bodies whatsoever, the stars and the sun, the earth and the moon, the air and the waters of the ocean, the salt dissolved in those waters, the sand on the sea-shore, the rocks which the geologist studies, every bird and beast and fish and insect, every blade of grass and every tree, the metals and lenses of the microscope, the eye and the brain of the microscopist who looks through it and the object at which he looks, in fact the whole choir of heaven and furniture of earth. Absolutely everything material is thus, in some sense, resolvable into an infinitely complicated dance of particles whose minuteness baffles the imagination.

" Is this a true picture?" we may well ask. It is true and useful in the sense in which a map or diagram is true and useful. It represents, with the greatest exactness of which Science is at present capable, the universe in one or a few of its aspects. But there are infinitely varied other aspects equally or more than equally valid and real of which it gives us no glimpse. The plan of the Central Pleasure Gardens in Volume XIII. of our Proceedings is an excellent one and gives much useful information, but it does not and cannot give us the colour and the fragrance of the flowers, the sweet purity of the air, the song of the birds, the rustling of the leaves, the influences of which Bacon wrote in the well known words, " God Almightie first Planted a Garden. And indeed it is the purest of Human Pleasures. It is the Greatest Refreshment to the Spirits of Man; without which, Buildings and Pallaces are but Grosse Handy-works."

The Conservation of Matter and the Conservation of Energy have long been regarded as two of the most important of all scientific generalisations. The doctrine of the Conservation of Angular Momentum, or let us say, rotation, is, I think, less widely known to educated and intelligent people who have not specially studied Physical Science. Dr. Jeans expresses this principle in such a clear and simple fashion that I will quote from an article by him. " The principle asserts that rotation can neither be created nor destroyed, the total rotation, measured in terms of angular momentum, remains constant." Due attention must be paid to direction, rotation of a body in one direction being reckoned positive that of another body in another direction must be counted negative, so that the total rotation may be zero. A boy increases the rotation of his top by lashing it with a whip; where does the rotation come from? The answer is that the action of the boy's arm as he plies his whip would set him rotating backwards if it were not for the friction of his feet on the ground. The rotation of the earth itself is slightly affected and the boy has transferred to the top a minute fraction of the earth's angular momentum which is restored when the top ceases to spin. "The boy could no more have created rotation in the top out of nothing than he could have created the top itself out of nothing."

This principle is no new discovery and its validity is not in question, but what is new and startling is the discovery, in connection with the revolution of electrons within the atoms of matter, of the existence of an ultimate minimum of angular momentum, a natural unit of which all quantities of angular momentum are integral multiples.

Another instance of this re-opening of questions that seemed definitely closed is to be found in connection with the nature of light. It is known to all or most of you that Newton held a corpuscular Theory of Light. This was further elaborated by Laplace, Poisson and other great mathematicians, but more than a century ago it was replaced by the Wave Theory. Thomas Young taught that light was a form of wave-motion in the ether of space, and this view prevailed over the older corpuscular one. Sir J. J. Thomson has recently told us that Fresnel and other mathematicians "developed the optical effects which would follow from the undulatory theory in the domains of interference, diffraction, polarisation and double refraction; these include the most beautiful, important and complicated of optical phenomena, and the results of their theory, in many cases quite unexpected, have been in complete accordance with the results of the most searching and accurate experiments; no theory has ever survived such searching tests as those to which the undulatory theory had been exposed up to the end of the last century." It seemed safe to conclude that finality had been reached and that nothing remained except the further working out of details. But the discovery of X-rays, the recognition of them as being akin to ordinary light, and a study of their effects in what is called ionisation, the expulsion of electrons from atoms, has shown that the undulatory theory is incomplete. Sir J. J. Thomson, than whom we have no greater authority, declares that some combination of the Newtonian theory with that of Young is required for the explanation of the new facts and he has himself, in his recently delivered Fison Memorial Lecture, given the outline of his own suggestions towards such an amended theory.

My allotted time is nearly spent and I must omit many things I should like to have touched upon, but what I have said may suffice to show that the present position of Natural Science is one in which profound changes are taking place in theories, and when the foundations are being carefully examined and found in many cases to be in need of repair or replacement. I did not attend the Southampton meeting of the British Association, but I have read all or nearly all the addresses of the sectional presidents with the result of confirming my view that the men of Science of to-day are, on the whole, humbler than was the case some fifty years ago. Immense as have been the extensions of Man's control over the forces of nature there is, I think, a fuller realisation of the vast Unknown surrounding the region which has been illuminated by our knowledge. Whatever may be the ultimate fate of the hypothesis of Einstein, relativity in one sense has come to stay. Our knowledge is relative, not absolute, valid within limits but not expressive of all reality. The words of Professor Parks, President of the Geological Section of the British Association, seem to me applicable not only to Geology but to all departments of Natural Science. He said, "To humbleness and caution I would add a conviction of theism as a result of the study of Geology." It used sometimes to be said that whereas mathematicians and physicists were often religious, the biologist was as often a materialist. Listen now to Professor Lloyd Morgan, who declares that he attributes "the whole sweep of evolutionary advance to Spiritual agency," and speaks of this advance as manifesting the timeless and omnipresent Divine Purpose.

To sum up, while we may regard, and rightly regard, the Universe as a collocation of matter and energy, this is but a partial view. With equal and greater assurance we may use the words of Goethe and say that Nature is the living visible garment of God, or those of the ancient Hebrew poet who said, "The Heavens declare the Glory of God and the Firmament showeth His handywork."

Selected Papers.

" Flints and their Origin."

By Henry Bury, M.A., F.G.S., F.L.S.

The term " flint " is generally confined to that form of impure silica which is found in the Chalk; and although it appears also in some later beds—Eocene pebble beds, Pliocene and Pleistocene gravels, and many modern sea-beaches—yet in all such cases the material has been derived from the Chalk; it is there that it had its origin. It is, however, very unevenly distributed, being abundant in the Upper Chalk, scarce in the Middle, and usually absent from the Lower Chalk; and while in those zones of the Upper Chalk in which it is most abundant it occurs in stratified layers at intervals of two or three feet, yet these layers get further apart as we pass upwards or downwards from that level.

All these broad features can be very well seen from a distance in some of our sea-cliffs; but coming now to closer quarters, we find that the flint usually occurs in bands of nodules of extremely irregular form and variable size; but more rarely it lies in thin sheets, with a fairly level surface above and below: it is then usually spoken of as " tabular flint." When flints are broken open they are found to vary greatly in colour and other characters; some are black, others various shades of grey; some are translucent, others are quite opaque; and while as a rule their substance is extremely hard and compact, they are sometimes full of cavities, or " carious," especially where the layers are furthest apart, near the upper and lower limits of their occurrence.

How did these flints originate? The deep-sea soundings of the middle of the 19th century threw much light on the origin of the Chalk, proving, as they did, that an almost identical deposit was being formed in the depths of the Atlantic at the present day; but this " Globigerina Ooze " contained no flints, and therefore did not help us to solve our present problem. It is known, however, that, just as this Globigerina and many other organisms form shells and skeletons of carbonate of lime, so there are many others which use siliceous matter for similar purposes; such for example as the microscopic plants called Diatoms, the Radiolaria (Protozoa, and therefore related to Globigerina), and certain Sponges—but not, it need hardly be added, the sponge of commerce; for if all sponges had siliceous skeletons, they would never have been raised to their present proud position of " companions of the bath."

Not only were many sponge spicules and Radiolarian shells found in flints, but it was noted that such organisms were present in immense numbers in certain parts of the modern ocean-floor, forming in fact definite layers or sheets of finely-divided siliceous matter; and the suggestion was therefore made (and widely accepted) that similar layers might have been deposited at rhythmic intervals on the floor of the Cretaceous ocean, and that there the originally separate siliceous particles might, in some way or other, have been fused together into lumps or sheets, so as to form the nodular and tabular flint which we see at the present day. It is evident that in this suggestion we have two distinct problems: first, what was the cause of the rhythmic deposition; and secondly, what was the cause of the fusion into compact masses? And these we must now proceed to consider separately.

The science of Astronomy offers us several examples of rhythmic action, but unfortunately they none of them approach the phase that we require. The daily alternation of light and darkness, and the fortnightly period of the tides are obviously too short. The annual change of seasons is better, and one writer has even suggested that the alternation of calcareous and siliceous layers in the Chalk may be connected with it*; but apart from the improbability of the sun's rays producing any such marked effect at the bottom of a fairly deep sea (though far less deep than the present Atlantic Ocean, the Cretaceous sea probably attained a depth of from 80 to 100 fathoms) we have positive proof that the Chalk was formed at a far slower rate than this hypothesis would permit. On more than one occasion the shell of a sea-urchin has been found in the Chalk with a Brachiopod shell (Crania) attached to it; but Crania only swims freely in the sea in its youngest stage, and then becomes fixed, like an oyster, for the rest of its life. Clearly, then, this Brachiopod must have grown to maturity before the shell of the sea-urchin was covered up, and although we do not know how long it takes to reach maturity, it is perfectly certain from this that the Chalk could not have been deposited at such a rate as two feet or more in a year; it is much more probable that such a thickness would take at least a century (and possibly many centuries) to produce.

The only other definite rhythm offered us by Astronomy is one connected with certain movements of the Pole, and with the "precession of the equinoxes"; but since a complete cycle in that case occupies more than 20,000 years, it is as much too long for our purpose as a year is too short. Geologists are not in a hurry, and they deal in millions of years as freely as the Chancellor of the Exchequer deals in millions of pounds; but even they are not prepared to wait 20,000 years for the formation of three or four feet of chalk and flint.

But if Astronomy fails to offer the rhythm we require, can we fall back on Geology? It is certain that changes in the relative level of land and sea have often occurred, and there is reason to believe that in several cases these changes have been of a rhythmic nature. Is it possible, then, that the postulated change from calcareous to siliceous organisms can have been due to changes in the depth of the Cretaceous sea?

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*Bulman, Science Progress No. 41 (1916), p. 154.

At first sight this suggestion is somewhat attractive, but it is not supported by closer examination. Speaking generally, the principal fossils (Sea-urchins, Molluscs, and Brachiopods) found in the chalk zones are identical with those occurring in the layers of flint; which shows that the changes in depth (if any) were not sufficient to produce a complete revolution in the fauna; and it is highly improbable that they should have affected certain groups of organisms (Protozoa and Sponges) in such a marked degree, without acting on other groups as well. In the absence of further evidence, therefore, the hypothesis of recurrent changes in sea level must be abandoned, and we are left without any satisfactory explanation of the rhythmic occurrence of the flint layers. Later on it will be suggested that this rhythm is due to secondary processes, and not to an original accumulation of siliceous organisms in successive layers; but for the present we will leave this question in suspense, and pass on to our second problem. What caused the originally separate and minute particles of silica (shells of Radiolaria, spicules of Sponges, etc.) to fuse together into the nodules and sheets of flint which we find at the present day?

Seeing how highly insoluble flint is at ordinary temperatures, one is tempted to invoke the aid of heat to explain this phenomenon; and it is easy to show that a high temperature does considerably increase the solubility of silica. But on the other hand there is no reason whatever for supposing that the Chalk, as a whole, has ever been subjected to such conditions. Evidence of high temperatures is often seen in rocks which have been at some time sunk far below the earth's surface or have undergone severe pressures, as seen in folds and faults; but the Chalk has not been buried very deep, and even where it is now covered with some thousands of feet of Tertiary strata, it is obvious, from the fact that flints occur in some of the earliest Eocene beds, that they were formed before this load was laid upon them. The principal folding and faulting of the Chalk, too, so well seen in the Purbeck cliffs, is evidently of much later date than the formation of the layers of flint, which follow the lines of folding, and have often been crushed to powder by the pressure.

But further examination shows us that it is quite unnecessary to call in the assistance of heat in order to explain the phenomena in question. Chemists tell us that there are several forms of silica, of which two only need concern us—(1) opal, and (2) chalcedony. The latter is the principal ingredient of flint, but the shells of Diatoms and Radiolaria, and the spicules of sponges are composed of the former, which is far more soluble. There is therefore no difficulty in understanding how this organic silica could be dissolved by water, salt or fresh,* filtering through the

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*About 150 grains per million gallons are found in spring water, and only about 14 grains in sea water; but this is due, not to a difference of solvent power, but to the removal of most of the silica by living organisms between the spring and the sea.

Chalk, but why it should be redeposited as flint in bands and nodules is not so clear. Almost all that can be said with certainty is that the process was not effected *en masse* at any one time, like the running of a jelly into a mould, but took place slowly, molecule by molecule. In the white powder which is often found in hollow flints, many examples have been discovered of Globigerina shells perfectly reproduced in silica, and there seems to be no possible doubt that these are cases of " pseudomorphism "—that is to say that the silica has replaced the original carbonate of lime by a process of molecular substitution. Such substitution is often met with in igneous rocks, where one mineral may, by replacing another, take on a crystalline form which does not belong to it, but to the mineral which it has displaced. Similarly, in the Chalk, various calcareous structures—not only Globigerina, but corals, etc., as well—may be completely reproduced in silica; while more rarely the opposite process occurs, and a siliceous structure is transformed into carbonate of lime.

Hitherto we have proceeded on the supposition that the siliceous matter, from which flints were made, was originally deposited in the form of layers, as we now see it; but it is time to take note of certain observations which render this view extremely doubtful. In the first place, if we examine closely a piece of chalk, we shall find that it contains a number of tiny hollow spaces or pores; and when we study these pores in detail they are found to have the form of certain spicules belonging to siliceous sponges. It is clear, therefore, that these pores are spaces out of which siliceous matter has been dissolved, and that there must have been at one time no inconsiderable quantity of such matter which was not concentrated in the flint zones, but was diffused throughout the layers of chalk. In the second place, there occur in the Chalk a number of veins or cracks standing more or less at right-angles to the bedding planes; and it is by no means uncommon to find these veins filled with nodules of flint. And since it is impossible to believe that the organic silica, which provided the material for these flints, can have been originally deposited at such an angle (often a right-angle) to the planes of stratification, it is clear that the formation of this vein-flint must be due to some secondary process, following the production of the cracks. Now there is reason to believe that these cracks were formed at the close of the Secondary Period, when the Chalk first emerged from the sea; and since we know that the flints were already in existence before the Tertiary strata were deposited, we get an approximate date for their formation.

It is evident from all this that the old theory, which regarded the concentration of siliceous matter in the layers in which flint now occurs, as an original feature, is at least incomplete, and may be wholly erroneous; and it becomes our duty to inquire whether there is not some other theory which will more satisfactorily meet the case.

In his investigations into the nature of concretionary structure Liesegang showed that a crystal growing in a solution is surrounded by a zone of less than average concentration. When he filled a test-tube with jelly impregnated with bichromate of ammonium, and added a few drops of silver nitrate, silver chromate was formed, and crystallised out at a certain degree of concentration. But instead of forming a single mass, these crystals were arranged in layers, separated from one another by impoverished zones. At the top of the tube, where silver chromate was formed in abundance, these layers were close together; but lower down, where the supply of silver began to give out, they became further and further apart. Thus Liesegang obtained experimentally just such a structure as is commonly seen in agates and other concretionary structures; and he made the bold suggestion that similar causes had led to the zonal arrangement of minerals so often seen in rocks, including the distribution of flints in the Chalk.

According to this view, which has been further elaborated by Grenville Cole (i) and W. A. Richardson (ii), the siliceous matter in organic form (sponge spicules, shells of Radiolaria, etc.) was formerly scattered fairly evenly throughout the mass of the Chalk; but at some period or other it became dissolved by percolating water, and redeposited in zones of concentration (flint bands) at intervals, leaving unsaturated zones of almost pure chalk in between. Grenville Cole suggests that this change occurred during the consolidation of the Chalk, but before its upheaval, when the bedding planes, still horizontal, would form the natural lines of re-deposition from water moving at right-angles to them; but Richardson gives reasons for thinking that it more probably took place after the first uplift at the close of the Cretaceous period. This uplift was accompanied by so little distortion that the bedding planes remained almost horizontal, but a few nearly vertical cracks were formed in which the " vein " flint has been deposited. He finds, among other things, that the upper and lower limits of flint, as well as the zone of greatest frequency, vary greatly in different regions, being lowest in Devonshire, where no Chalk higher than the zone of Micraster cor-anguinum is present; and he believes that this distribution shows a relation to a land surface formed at the close of the Cretaceous period, rather than to the original planes of deposition.

There are still some points requiring explanation. In Liesegang's test-tubes the zones were most closely packed together at the top, where silver was most abundant, but became more and more widely separated further down, owing apparently to the growing scarcity of the necessary material. In the Chalk also there is a region of maximum occurrence of the flint bands, which get more and more separated as we pass downwards; but this can-

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i. Geol. Mag. Dec. 6, Vol. IV. (1917), p.64.
ii. Ibid, Vol. VI. (1919), p.535.

not be due to lack of material, for analysis shows silica to be present in considerable quantity even in the Lower Chalk. Moreover, the increased separation is noticeable also in an upward direction, flints being rarely found in any quantity above the Marsupites zone. These flintless regions of the Upper Chalk now contain next to no silica, and we may conjecture that what silica they originally contained was all dissolved without reaching a degree of concentration of solution sufficient for the deposition of flint, though why this should be so, unless they were originally deficient in silica, is not apparent. But for the absence of flints in the Lower Chalk some other explanation is necessary. It appears that where variations of texture and composition are present in the original strata they interfere with the continuous diffusion necessary for concretionary formation, and rhythmic deposition does not occur; and it therefore seems possible that the flint bands already formed in the Upper Chalk may have given rise to a similar obstruction, and have prevented the segregation of siliceous material in the Lower Chalk. Or, again, it may be that, by the time the latter level was reached, consolidation had proceeded so far that water could no longer percolate with sufficient freedom. But here we enter the region of guesswork, and it must be conceded that this and many other points of detail require further investigation. The main hypothesis, however, seems fairly well established, that flints originated from the rhythmic concretionary deposition of silica, which was formerly scattered (in organic form) fairly uniformly throughout the mass of the Chalk. A similar origin can also be ascribed to the layers of chert in the Portland Beds, and in the Carboniferous Limestone; and it has even been suggested, though with less probability, that some of the layers of coal may have been formed in the same way. But that is a matter which does not concern us here.

"The Vegetation of Chalk Soil."

By Mr. W. Munn Rankin, M.Sc., B.Sc.

The vegetation of the chalk country of South England falls naturally into three main types—Grassland, Scrub and Woodland. The sheep pastures are the most distinctive feature of the downland. Woodland is not equally widely distributed, but, where at all extensive, as on the Chilterns and the West Sussex Downs, it contributes a striking element to the landscape. Scrub is comparatively limited in development.

Throughout the extent of the chalk outcrops in England the climate varies to a slight extent as between the East-Anglian hills, where the rainfall is low and the extremes of temperature, for our country, wide apart, and the seaward and western ridges of Dorset where the conditions are oceanic in type and more equable. The difference corresponds to the great extent of grassland in the eastern limbs of the chalk country and the appearance of a fair measure of woodland in the south western ridges, as well as most probably to the replacement of beech by the ash as the wood-former along the chalk east to west. The factors of the soil in their places determine in gross and detail the composition and habit of the vegetation of regional units of less extent than the area of half a country. Another group of factors, the biological, arises chiefly from the presence of sheep on the pastures.

The soils of a chalk down are not uniform. Where the ridge is mantled by a cover of the re-distributed deposits, clay with flints or plateau gravels, the soil is non-calcareous and the vegetation is a grass heath, or scrub or sometimes a woodland of the damp oak-wood variety and shows no affinity with that of a limestone plant formation. Calcicole plants are totally lacking.

Chalk consists lithologically of three main divisions, the Upper, Middle and Lower. The Upper Chalk is an almost pure limestone which therefore weathers to a shallow soil composed essentially of the insoluble residue of siliceous and argillaceous substance, with flakes and smaller fragments of chalk in the lower layers. The soil lacks both potash and phosphates and, near the surface, even lime. The Lower Chalk is an impure limestone or marl, and weathers to a stiff and deep soil eminently suited for the cultivation of cereals and "roots." The junction of the Upper and Middle Chalk often agrees pretty closely with the first hedgerows of the farmlands below the scarp and divides the sheep pastures from the ploughlands. The bottoms of the combes on the dip-slopes are occupied by varying depths of rainwash from the slopes above, and this being typically non-calcareous produces a nondescript grassland.

The chalk grasslands have from time immemorial been sheep pastures. Here the earliest human communities made their home and maintained themselves by the flocks and herds which roamed the downs. Here are the great camps, vast enclosures even more useful as providing shelter and protection for the sheep and cattle than as places of refuge from marauding men or animals during tribal or national warfare. Here are the dew-ponds, the cattle ways joining one to another, and the far spread ridgeways or green roads, which were ancient before ever the Romans came and built their straight paved streets across the country. Here are the battlefields of nations, with defensive dykes, hill fortresses and the burial mounds of warriors and the forgotten great. The open downs in prehistoric times supported the greater part of the population of the southern quarter of the country. The claylands were either thick woodland or fen and moor. The sands and gravels were occupied by inhospitable heaths. It is inconceivable that at any time the whole of the shallow soils of the chalk uplands were covered by continuous woodland, or that these had first been cleared by the neolithic pastoralist to make room for his flocks. It is more likely that the uplands were, in the main, open country of grassland with scattered clumps of shrubs. This view, however, admits that the grassland may have received considerable additions from former woodlands as a result of the destructive activities of man in firing and felling under the axe. It is not possible now to distinguish between the primary and original grassland and the secondary and derivative grassland.

Under the circumstances of heavy pasturage by sheep, which has continued for hundreds of centuries, grassland is the only possible vegetation on the open downs. The soil is shallow and dry and well suited for the roots of herbaceous species, but ill suited for the greater trees. In places spiney or evergreen shrubs, the yew, juniper, thorn and gorse form a scattered scrub and give rise to a parkland type of landscape, but these are far from indicating the possibility of high woodland. The age-long pasturage of sheep has meant the operation of a powerful biological factor. The close and searching cropping has been effective in producing that short and compact turf which is the special feature of the open downs, as well as favouring those associates which can tolerate and respond to this repeated trimming, treading and dunging above those which cannot. A chance seedling of a woodland tree has little chance of maintaining itself during the searching nibbling of an almost solid flock of sheep as it slowly moves its way under the direction of the shepherd and his dog.

The turf is remarkable for the large number of species of grasses and of the more plainly floral herbaceous plants. No single species dominates the grassland as a whole in the manner of Eriophorum on the Pennine Moors or Calluna on the Surrey or New Forest Heaths. Societies of one or two species may quite locally make a mass effect of colour, often brilliant, as mats of thyme, rock-rose, ladies-fingers or quincey wort. The general aspect of the downland is scarcely disturbed by such displays.

The soil of the pasture, though shallow, is deep enough to show sharp contrast in composition between the upper and lower layers. Even when the chalk rock is only a few inches down, the superficial inch may contain practically no trace of lime. The lowest layer, a further inch or two nearer the weathering subsoil, is generally rich in Calcium Carbonate. The reason for this is not far to seek. The uppermost layer of the turf has been washed practically clean of its soluble mineral substance by the rains of centuries and consists therefore of the scanty organic humus mixed with the insoluble residue of siliceous and clayey constituents of the massive chalk. Agreeing with this difference in the nature of the two extreme layers of the soil is the occurrence in apparent perfect admixture of two distinct types of vegetation. The greater part of the turf occupies only the upper non-calcareous soil, and the roots run horizontally at no distance below the ground. On the other hand those few species which are almost entirely restricted to limestone soils have long roots which grow vertically downwards through the upper soil and branch almost entirely only among the flakes of chalk in the lowest richly calcareous soil. Below the surface there is therefore no competition for room or food and the re-actions of the two types of groups with the soil must be widely in contrast. The general assemblage of the pasture species is far from being restricted to supposedly calcareous soil. Any shallow and dry soil in well illuminated habitats not altogether deprived of soluble mineral substance is occupied by most of these plants. The truly calcicole species on the contrary are almost entirely restricted to soils with a high proportion of lime, and are particularly met with in the scanty soil within the chinks of such bared rocks as cliff faces, pavements and screes. Among these are the salad-burnet, rock rose, dropwort and the distinctive calcareous orchids.

The special features of the turf, shortness of growth, springiness and the like, and perhaps also the existing balance of number and subordination among a crowd of herbaceous species, quite possibly owe more than we can reckon to the age-long semi-cultivation of sheep pasturage. The pretty regular and searching cropping, treading and dunging by great flocks of sheep under the guidance of shepherds, continued in season and season for a century of centuries since the earliest Neolithic times, signifies in effect a sort of cultivation and artificialization which must have modified the primitive grass association to an extent which is probably considerable. The importance of sheep as a biologic factor operating on the chalk grasslands can be easily realised after a simple experiment of enclosing a few square yards of the open down with hurdles, and, to make more sure against rabbits which have recently in some districts at any rate become a destructive agency, with close wire netting also. In the course of three or four years, the short turf grows as high as a meadow.

Where for some reason or other sheep-rearing fails to be maintained for a period of years the pasture shows a decided tendency to pass into scrub. A number of shrub-species have the chance of establishing themselves as seedlings and surviving the critical years as sound saplings and becoming established as more or less mature plants. The chief of these species which can tolerate the fairly extreme circumstances of exposure to wind, sunshine and soil drought are yew, juniper, the white and black thorns, white-beam, spindle tree, dog-wood, and, in certain restricted localties, box. Gorse thickets occur on the true chalk pastures as well as on the heaths where the gravels or sands cover the crest of the downs. Good examples of this type of scrub occur on the South Downs and above South Harting and Buriton. Another line of development of the scrub is by degeneration from woodland, when the greater trees of the upper canopy are felled and not replaced and the middle layer is allowed fuller opportunity for growth. Where the main tree of the Ash Wood is cut down and not replanted the yew may get a footing and, extending its occupation slowly, the open scrub may in the course of time become a true wood again, but of yew and not of ash.

The Chalk woodlands form a type of vegetation as sharply defined as the Grasslands. Three distinct varieties of woodland can be recognised in Hampshire and Dorset—the Beech Wood, the Ash Wood, and the Yew Wood. Beech is the chief wood-former on the chalk to the east of Salisbury Plain. The easterly limits of the chalk ranges which radiate from the Plain, the Chilterns, the North and South Downs, are practically barren of any native timber; but in their western confines, especially in the corner of the Hampshire Weald about Selborne and Petersfield, the beech-hangers cover a considerable area of the steeper slopes of the escarpments. Numerous beechwoods are scattered over the rolling downs between Petersfield and Salisbury. Still further west of the Plain and towards the coast of the English Channel and especially in the Isle of Wight and the so-called Isle of Purbeck the beech is replaced as a builder of woods by the ash. The ash is also the dominant tree in the woods on mountain limestone of Somerset and the North of England generally. It would appear that the proper region of the beech is South-east England, where the climate in respect of rainfall, humidity, temperature, etc., more closely approximates to the strictly continental type, and on the other hand that of the ash belongs to the oceanic type of climate. If this allocation of territory is justified it would appear that the boundary of the two regions passes through the Hampshire Chalk country.

The Yew Wood is of very limited distribution, being practically restricted to a single example, the great wood in Kingley Vale, a few miles to the north of Chichester.

The Beech Wood is characterised by the deep gloom of its interior, wherein grew only scattered fungi and the similarly colourless saprophytes, Neottia and more rarely Monotropa. Where the shade is less intense beneath openings in the canopy or just within the fringe of the wood the floor is covered with a carpet of dog-mercury and ivy, within which a few other species find a place. On the edge of the wood in the fuller but yet not most intense light the association of the intermediate shrub layer and the ground carpet is extraordinarily rich in species and individuals.

The Ash Wood in contrast is well lighted throughout and the carpet generally is scarcely distinguishable from that of the margin of the Beech Wood. Fine examples of the Ash Wood occur in the combes of the downs behind Newport in the Isle of Wight as well as on the slopes of the Dorset Heights overlooking the Vale of Blackmoor. Stages in the transition from the

Ash Wood to the Yew Scrub occur here and there throughout the ash region. Good examples are seen on the slopes of Hambledon Hill, a few miles west of Blandford.

A Yew Wood is even more empty of life than a Beech Wood. Not only is the gloom intense, but the leaf debris is poisonous alike to plant and animal, so that nothing relieves the floor from utter barrenness. The litter of broken branches and fallen stems of dead trees confirms the sense of the great wood at Kingley Vale as being a charnel house of vegetation.

"The Planet Mars."

By Dr. W. H. Steavenson, F.R.A.S.

Particular importance attaches to the observational side of Martian Astronomy. Few people realise the great difficulty which astronomers encounter in endeavouring to locate fine detail upon a disc which, even under the best conditions, looks no bigger than a sixpence held at arm's length, and is seldom seen steadily, owing to the tremors of the earth's atmosphere. Details such as the so-called " canals " lie at the limit of vision, and there is not room for too much dogmatism as to the exact form of markings of so elusive a character. Two facts only emerge as practical certainties, firstly the presence of ice or snow at the poles of Mars, which melts and re-forms as each pole in turn presents itself to and withdraws from the sun's rays, and secondly changes of a seasonal character which occur in the darkening of various parts of the planet's surface, and which we may tentatively ascribe to vegetation, in the absence of any other plausible theory. Drawings of a given region of the planet made by several skilled observers may differ widely. One of the greatest living planetary observers has exhibited a pair of drawings showing considerable differences in structural form. While positive information is so obscure it is idle to build up speculative theories. What is wanted is the continued accumulation by painstaking and conscientious astronomers of more and more observational data, without which we shall never learn more about the planet Mars.

"Nature and Origin of Coconut Pearls."

By Sir Daniel Morris, K.C.M.G., D.Sc., LL.D., D.C.L.

The presence of mineral deposits in plant life is a well-observed phenomenon. For instance, such deposits have been observed in cavities of the heartwood of trees, known as windshakes. These appear in an irregular shape forming masses seven or eight inches long and two inches wide and usually consist of carbonate of lime. Mr. Valentine Bell found such mineral deposits actually alternating with the usual rings of wood in trees in India. Further, Professor Judd reported that he had obtained deposits of apatite or phosphate of lime from logs of teak that were being sawn for gun carriages at Woolwich Arsenal. We also find lime occurring in fine granular deposits in the cells of living plants, and as rounded grains in the pomegranate and other Indian fruits. In the epidermal cells of the leaves of fig and mulberry trees and in hops are deposited clusters of very small microscopic crystals of carbonate of lime known as cystoliths. Nearly all other crystals found in plants such as the rhubarb consist of oxalate, not carbonate of lime. Those appearing like bundles of needles are known as raphides. Some of these are microscopically of large size and beautiful, with perfectly formed crystalline surfaces. Such crystals are found in the cavities of cells in the leaf stalks of begonia, and in the stem and roots of the haricot bean. In lilies and aroids crystals of oxalate of lime in the form of raphides are found filling many of the large elongated cells.

Silica is another mineral substance associated with plant life. This is exemplified in the beautiful enamelled surfaces of tropical canes and rattans. The dry epidermis of these is said to contain something like 99 per cent. of silica. Hence they are usefully employed in covering chair bottoms and the sides of carriages.

Hydrated silica is also occasionally found in the stems of the common bamboo in India. In this, as in other instances, it is evident that plants take up a larger amount of silica than they can use, and in the special case of the bamboo it is exuded into the hollow cavities of the stem, where, at first, it concretes as a jelly, and eventually forms small cakes or discs, known as tabasheer. Usually these discs are picked up in the ashes after the bamboos have been burnt in forest fires. It is said that when the discs are heated they become phosphorescent, and further that there is a chemical affinity between them and true opals. Tabasheer is highly valued by the natives of India and Malaya for its talismanic properties, and serves as amulets or charms against disease and evil spirits.

Of all mineral deposits in plants there is perhaps nothing so rare and interesting as the pearls found in coconuts. In view of a discovery that has recently been made in the formation of coconut pearls it would be interesting to follow the sequence of events in the production of pearls in oysters, as well as in what are known as mussel-or seed-pearls.

Pearls have been known from early periods in the world's history. The pearls of Britain, presumably derived from the pearl-mussel found in some of our rivers, are mentioned by

Tacitus and Pliny, and a breastplate studded with British pearls was dedicated by Julius Cæsar to Venus. It is on record that during the last forty years of the eighteenth century pearls were exported from Scotland to the value of £100,000. At the present time seed-pearls are still being obtained in Britain at irregular intervals by fishermen.

The ancients obtained their pearls chiefly from the shoals along the coast of India and the Persian Gulf. At present they are also obtained from the coasts of Ceylon, Australia and Central America.

Pink pearls are found in the large marine shells known as conchs in the West Indies, but as they soon lose their colour they are not in much demand. On the other hand black pearls, which are highly valued, are found in the Gulf of Mexico. It may be of interest to mention that the largest known pearl obtained from the oyster is one of irregular shape now in the Beresford-Hope collection in the Victoria and Albert Museum in London. This weighs three ounces and has a circumference of four and a half inches. On the other hand, the most perfect pearl, known as La Peregrina, is, or was, in the Museum of Zosima at Moscow. This is described as a perfectly globular pearl of singular beauty, and is said to weigh twenty-eight carats.

According to the latest researches the cause of pearl formation in oysters in most, if not in all, cases, is the presence of a minute parasite within the soft tissues of the oyster. Around this a nacreous deposit (similar to that found on the inner layers of the shell of the pearl oyster) is gradually secreted, and ultimately completely envelops the parasite. Various suggestions have been offered as to the identity of the pearl parasite. All that is certain is that pearls are due to the presence of a minute globose parasite, the larva of a marine cestode worm. In all cases the larva dies in its cyst, and its remains are enshrined in successive layers of nacreous deposits, so that, as a French writer has said, "the pearl, an ornament associated in all ages with beauty and riches, is nothing but the brilliant sarcophagus of a worm." Apparently there remains no trace of the parasite or of a nucleus in the fully developed pearl.

The experience of pearl fishers shows that the oyster shells which are irregular in shape and stunted in growth, or which bear excrescences or are honey-combed by boring parasites, are those most likely to yield pearls. It is estimated that on an average only one shell in a thousand will contain a pearl.

Coming now to coconut pearls, these appear to have first come into notice when Rumphius, a distinguished botanist in the far East, published his Herbarium Amboinense in 1741. In this he described and figured three coconut pearls under the name of "Calappites." Rumphius sent a specimen of a coconut pearl as a present to the Grand Duke of Tuscany, who had it mounted in a ring. Nothing further seems to have been heard of these pearls until Mr. F. T. Bush presented a specimen to the Boston Society of Natural History (U.S.A.) in 1860. On a careful chemical and microscopical examination by Dr. Bacon, the pearl was found to consist of carbonate of lime with a small proportion of organic matter, arranged in numerous concentric laminæ adhering firmly together. The several layers formed groups differing in tint, and near the surface were exceedingly thin. In discussing the length of time that might be necessary for the concentric laminations in the formation of a coconut pearl, Dr. Bacon suggested that it might seem to require a longer period of time than the rapid growth of the coconut would admit, but, as in the case of animal calculi of a similar chemical composition, and of such as can be made artificially, these layers in the coconut pearl, whether resulting from successive depositions or from a process of segregation, may be rapidly formed. A few weeks, and sometimes only a few days, would be sufficient for the production of numerous laminæ. He also suggested that the great hardness of the coconut pearl was probably due to the peculiar crystalline arrangement of the layers with only a little organic matter binding the whole firmly together. No trace of a foreign nucleus was found, as already mentioned in the case of the oyster pearl.

In 1866 Dr. Riedal, ex-Resident of Menado, reported having found a pearl in a coconut which he had opened himself. In 1887 Professor Hickson, of the Victoria University at Manchester, presented to the Royal Gardens at Kew one of two pearls he had obtained in the Celebes. This specimen is now on exhibition in Museum No. II, and it may be within the recollection of some of the members of this Society that it was shown to them when they visited Kew two years ago.

Interesting and apparently conclusive evidence of the factors and conditions resulting in the formation of coconut pearls has lately appeared in "Nature" (Vol. 115, p. 188). This is a reprint, by permission of the author, from the Proceedings of the Royal Academy of Science at Amsterdam, by Dr. F. W. T. Hunger. The author, on his last voyage to the East Indies for the purpose of study, had resolved to endeavour to find out something further about coconut pearls, and, if possible, solve the problem of their formation. He realised the utter futility of going to look for pearls in the tropics, on account of their extremely rare occurrence. In proof of this it was mentioned that on a coconut estate where approximately three million nuts had been opened annually for several years, no such pearl had ever been found, although stories about them were well-known to Europeans and natives.

It is important to bear in mind that while at one time coconut pearls were said to be found free within the cavity of the nut, there is now sufficient evidence to show that the pearl is always more or less attached to the base of the nut and immediately over the embryo. If a coconut is examined, after the husk is removed, it will be noticed that there are three spots at the lower end, known as the germinating pores. These coincide with the former three cell divisions of the nut, now reduced to one. Over the one spot where germination takes place there is only a membranous covering, easily pierced by the plumule, whereas the other two spots are furnished with a hard tegument only a little thinner than other portions of the shell. The normal process of germination in the coconut begins by an enlargement of the minute embryo, which grows outwards through the germinating pore, while at the same time, or a little earlier, there is a growth inwards into the cavity of the nut by means of an absorbing organ known as the haustorium, which ultimately fills the cavity of the nut and absorbs from the endosperm and the coconut milk the nourishment necessary for the growth of the young plant.

It has been found that in extremely rare cases all three germinating pores are sealed up, and we have what are known as " blind coconuts." These are regarded by the Mahommedans as sacred, and are preserved in some instances for scores of years as family heirlooms. Hence it is difficult to obtain a specimen. Fortunately, the author of the article in the Proceedings of the Royal Academy was successful in collecting eight unopened blind coconuts during his travels in the East Indian Archipelago.

The first four which he opened produced nothing, but in the fifth he found a really beautiful pearl still attached to the base of the kernel. The next two also gave negative results, and the eighth was kept unopened. The nut which had contained the pearl had been gathered but a short time before, and the kernel or endosperm was quite normal. The pearl was attached without the least trace of a stalk. It was embedded in the endosperm and was easy to remove. It lay exactly at the base of the nut, just over the spot where the germinating pore ought to have been, and probably more or less in contact with the embryo.

This discovery warrants the inference that a coconut pearl actually represents a calcified portion of the haustorium, which has been retained in the nut when normal germination was impossible owing to the absence of a germinating pore.

We have here in the formation of the coconut pearl somewhat similar conditions to those discussed in the formation of the pearl in the oyster. The nucleus in the case of the oyster pearl was shown to be a minute parasite which is eventually covered by successive layers of nacreous deposits which give it its characteristic pearly lustre. In the case of the coconut pearl on the other hand, the nucleus seems to be not a parasite, but a small, and possibly detached portion of the undeveloped haustorium, which is enveloped by successive layers of carbonate of lime, but without a pearly lustre.

There is, however, one point which still remains to be solved, and that is why the coconut pearl consists almost entirely of carbonate of lime, when it is admitted that neither the endosperm nor the coconut milk contains this carbonate in any appreciable quantity.

Obituary Notices.

Field Marshal Lord Grenfell, G.C.B., G.C.M.G., LL.D., F.S.A.

The announcement of the death of Lord Grenfell in January last was received with very great regret.

Born in April 1841, Lord Grenfell entered the army in 1859 and had a distinguished military career. He rose through the various ranks to that of Field-Marshal in 1908. He saw many years' service in Egypt, was present at the battle of Tel El Kebir and took part in the Nile Expedition. He acted as Aide-de-Camp to Queen Victoria and was Sirdar of the Egyptian Army in 1885-92. While in command of the Egyptian Army in 1897-8 he was specially thanked by both Houses of Parliament for his services. Among other appointments he held was Governor of Malta and General Officer Commanding-in-Chief of the Forces in Ireland 1904-8. He was a Privy Councillor and had received many foreign decorations.

During his long service in Egypt for a period of ten years it is on record that he brought to the discharge of his duties all the traditional soldierly virtues of manliness and courage. When he retired from active service he lived the life of a country gentleman and took a deep personal interest in all around him.

In recollections of his youth, Lord Grenfell spoke of Charles Kingsley as the most delightful of uncles, and when quartered at Aldershot, as a Subaltern, he frequently visited the Eversley Rectory. A walk with Kingsley was described as most delightful. " He was a first-rate naturalist and geologist. He conveyed instruction in so attractive a manner that the longest walk seemed far too short." It is not improbable that Lord Grenfell owed to Canon Kingsley, the author of " Yeast," " Westward Ho," " The Wonders of the Shore," and " Water Babies," his love of gardening and Natural History both of which were strong characteristics of his life.

In later years Lord Grenfell was the zealous and highly esteemed President of the Royal Horticultural Society. He came to reside at Bournemouth in 1917 and one of his first engagements was to preside at a lecture to the Natural Science Society on " The Mistletoe—its History and Associations with Primitive Religion, Folk-lore and Superstitions," delivered by Sir Daniel Morris.

In March 1918, Lord Grenfell delivered a very interesting lecture on " Reminiscences of Egyptian Exploration." In December of the same year he delivered his Presidential Address on " The Art of Ancient Egypt."

In April 1920, Lord Grenfell delivered a second Presidential Address on " The Island of Malta," which embraced a very interesting historical account of this out-post of the Empire.

While holding the office of Sirdar of the Egyptian Army Lord Grenfell was able to devote considerable time and attention to Egyptian Archæology, undertaking the sole responsibility, financial and otherwise, of excavations in the neighbourhood of Assouan, particularly in the Hill of the tombs, where he found in the sepulchres an immense quantity of fragments of coffins, mummies, pottery and other relics of the 6th and 12th Dynasties.

As is well-known by the Members, the Museum of the Natural Science Society is greatly indebted to Lord Grenfell for a valuable collection of Egyptian antiquities discovered by him and now on exhibition in what is known as the Egyptian Room. One large cabinet is devoted to a collection loaned to the Society by the late Mr. George Rogers MacDougall and presented after his death by Miss Henderson. Several other specimens, presented directly by Lord Grenfell, are of equally great value.

Lord Grenfell was also a generous contributor to the Library of the Natural Science Society. During the years 1920 to 1923 he presented valuable historical books on Ancient Egypt, a set of volumes on Egypt by Sir Ernest Wallis Budge and others, and various works also on Egypt of a later date. These are easily accessible to the Members of the Society on application to the Librarian.

In 1920 Lord Grenfell presented to the Natural Science Society a handsome Presidential Chair of the Napoleonic Period. This once belonged to Princess Murat. Naturally it is much treasured by the Society. Recently in the columns of *The Times* it was stated that in Lord Grenfell's will there was a phrase, " I have been a slave to my furniture." To this *The Times* added: " A slave, or rather a very faithful servant, to his country and to his duty all knew him to be; but those who are sensitive to the little personal touch in biography will welcome, without any disrepect to his memory, the revelation that of one thing this brave man was afraid. He was afraid of his furniture."

In concluding this brief outline it may be added that Lord Grenfell's Memoirs have recently been published. They contain a singularly full and interesting story of his life and activities.

Colonel Ernest Elliott Markwick, C.B , C.B.E., F.R.A.S.

For well-nigh half a century Colonel Markwick served his King and country. Born in 1853, and entering the Army in

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the late Control Department in 1872, he served with distinction in the Zulu War in 1879. In the Boer War he was present at the Siege of Pretoria and mentioned in despatches; a like honour and special promotion fell to his share in the Bechuanaland Expedition. There followed various periods in Ireland, at Gibraltar, and at home, culminating in his appointment as Assistant Director of Ordnance Stores, Southern Command. Then, along with the award of C.B., came a period of retirement, from which he was summoned, on the outbreak of the Great War, to take up a position on the Headquarters Staff at Dublin, where he rendered valuable service until the declaration of peace, retiring with the distinction of C.B.E.

A distinguished soldier certainly; but a no less distinguished amateur astronomer. Markwick was an observer of great ability and experience, and his vast fund of practical knowledge was ever at the disposal of the veriest tyro in telescopic work. He spent an enormous amount of energy in reducing and co-ordinating other people's observations, and his assistance and guidance were always given with an ability, charm of manner, and kindliness peculiarly his own.

His special interest was the study of "Variable Stars," and he was indeed one of our greatest authorities in this branch of Astronomy, and in that particular section of the work of the British Astronomical Association he proved himself a great and real Director—painstaking and able to the last degree. He was one of the oldest and most distinguished members of that Association, a permanent member of the Council, and President for two years. He had already been elected a Fellow of the Royal Astronomical Society as far back as 1879. His regular solar observations were recorded in a monthly letter to a Scientific journal on the "State of the Sun," and as another pleasant literary effort he had ransacked the poets for astronomical references and printed the result of his researches in a series of interesting monographs.

This Society had valued him as a member for 20 years. From 1908-10 he acted as joint Secretary, and during this period he compiled an interesting account, published in Vol. I. of the Proceedings of the Society, of a former Bournemouth Scientific Society, established in 1883, which expired in 1897. In 1920 Colonel Markwick founded an Astronomical Section of the Society, and, as Chairman of the Section for four years, carried on its work with delightful vigour and enthusiasm. His many varied and valuable services to astronomers will remain a cherished memory, especially with the amateur "watcher of the skies," for long years to come.

Rev. H. Shaen Solly, M.A.

The death of the Rev. H. Shaen Solly on March 27 took from the Society one of its most valued members.

By the Archæological and Historical Section, of which he was so long the Chairman, he will be much missed, and by those who, like the writer, enjoyed the privilege of his personal friendship, his loss is keenly felt.

Mr. Solly was born at Cheltenham on October 19, 1848, and was educated in London at University College School and University College, taking his B.A. degree in 1868. His theological training was obtained at Manchester New College, of which the celebrated Dr. James Martineau had just become Principal. After the completion of his divinity course he spent a year at the University of Berlin, and in 1873 took his London M.A. degree. He then entered the Unitarian ministry and remained in active service for thirty-eight years.

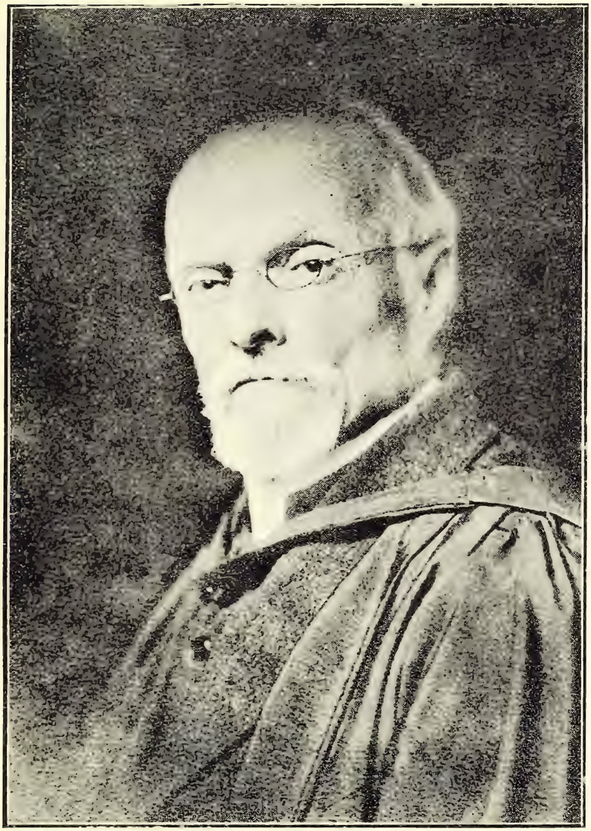
On his retirement he came to live in Parkstone and afterwards removed to West Bournemouth.

Mr. Solly married the eldest daughter of the late Professor Henry Morley, and his chief literary work is the "Life of Henry Morley," published in 1898.

Mr. Solly became a member of the Natural Science Society in 1912, was elected Chairman of the Archæological Section in 1914 and Vice-President in 1918. He held his Sectional Chairmanship till December, 1924, but during the last years of his tenure of the office he was assisted by Colonel J. R. Dodd. He was a very regular attendant at the monthly meetings of the Council, and made valuable contributions to its deliberations. His lectures were much appreciated and attracted large audiences, and he was an excellent organiser and conductor of excursions.

The Proceedings of the Society record that he gave twenty lectures and conducted eight General and fifteen Sectional Excursions.

Mr. Solly contributed many papers to the Proceedings of the Dorset Field Club, of which he was a member for many years, and did much valuable work in connection with the Bournemouth Literature and Art Association.



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COMPILED BY MR. R. A. DE PAIVA.

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1916-	SIR DANIEL MORRIS, K.C.M.G., J.P., M.A., D.SC., D.C.L., F.L.S.
1912-22	W. T. ORD, F.G.S.
1916-24	HUBERT PAINTER, B.SC., F.C.S.
1916-	F. G. PENROSE, M.A., M.D., F.R.C.P., F.R.S., M.B.O.U.
1909-21	A. RANSOME, M.A., M.D., F.R.C.P., F.R.S.
1907-18	MISS C. AGNES ROOPER
1904-8	W. SAVILLE-KENT, F.L.S., F.Z.S., F.R.M.S.
1916-	R. VOWELL SHERRING, F.L.S.
1918-25	REV. H. SHAEN SOLLY, M.A.
1905-11	A. W. THOMAS, M.D.
1905-16	J. ROBERTS THOMSON, M.D., F.R.C.P., J.P.
1905-14	H. J. WADDINGTON, F.L.S.

Chairmen of Committee

1904-5	J. ROBERTS THOMSON, M.D., F.R.C.P., J.P.
1905-6	J. E. LIDDIARD, F.R.G.S.
1906-7	H. J. WADDINGTON, F.L.S.
1907-10	W. T. ORD, F.G.S.

Chairmen of Council

1910-11	W. T. ORD, F.G.S.
1911-14	SIR DANIEL MORRIS, K.C.M.G., J.P., M.A., D.SC., D.C.L., F.L.S.

1914-Dec. 15	G. G. Hamilton, M.A., F.R.C.S.
1916-17	Sir Daniel Morris, K.C.M.G., J.P., M.A., D.Sc., D.C.L., F.L.S.
1917-Feb. 19	W. Munn Rankin, M.Sc., B.Sc.
1919-Mar. 20	Sir Daniel Morris, K.C.M.G., J.P., M.A., D.Sc., D.C.L., F.L.S.
1920-22	Hubert Painter, B.Sc, F.C.S.
1922-	J. R. Ralph Smythe, J.P.

Deputy Chairmen of Council

1911-14	G. G. Hamilton, M.A., F.R.C.S.
1914-Feb. 16	Henry Backhouse, F.R.H.S.
1916 Mar.-Nov. 16	R. O'B. Furlong, C.B., J.P., M.A.
1916 Dec.-17	W. Munn Rankin, M.Sc., B.Sc.
1917-19	F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.
1919-20	Hubert Painter, B.Sc., F.C.S.
1920-22	J. H. Ralph Smythe, J.P.
1922-	Rev. C. O. S. Hatton, B.A., F.L.S.

Hon. Treasurers

1904-8	A. D. George.
1908-	G. Brumell, A.R.I.B.A.

Hon. Secretaries

1904-7	Miss C. Agnes Rooper and J. R. L. Dixon, M.R.C.S., L.R.C.P.
1907-8	J. R. L. Dixon, M.R.C.S., L.R.C.P., and H. Backhouse, F.R.H.S.
1908-10	J. R. L. Dixon, M.R.C.S., L.R.C.P., and Col. E. E. Markwick, C.B., C.B.E., F.R.A.S.
1910 Sept.-Oct.	J. Donkin, F.R.I.B.A.
1910-11	H. Le Jeune.
1911 Nov.-Feb. 1912	Sir A. Brooke Pechell, Bart., M.B.
1912 Apr.-Mar. 1914	Theo. Michell, M.I.C.E.
1914 Apr.-Oct.	R. A. de Paiva.
1914 Oct.-July 1917	R. A. de Paiva and T. Capper, M.A., B.Sc., Joint Secretaries.
1917 July-25	R. A. de Paiva.
1925-	R. A. de Paiva and Rev. A. G. Yates, M.A., R.N., Joint Secretaries.

Hon. Assistant Secretaries

Apr. 1911-1912	Theo. Michell, M.I.C.E.
May Mar. 1912-1914	R. A. de Paiva.
1917-1918	G. Grace, B.Sc., A.R.C.Sc.
1919-1920	W. G. Boul, M.A., LL.D., D.C.L.
1920-	W. J. Woodhouse, A.C.P., M.I.H.

Hon. Financial Secretary

1905-8	J. H. Scott, M.E., M.I.M.C.E.

Assistant Secretary

1909-	J. F. Spencer.

Hon. Librarians

1908-1909	A. Scott, B.A.
1909-1911	F. I. Cooke.
1911-1912	W. Munn Rankin, M.Sc., B.Sc.

1913-1919	H. J. Ellis.
1919 Oct.-Mar. 1920	J. Omer Cooper, F.E.S.
1920 Mar.-Jan. 1921	Rev. C. O. S. Hatton, B.A., F.L.S.
1921 Jan.-	Claude Lyon.
1923-	Miss A. G. Veale, Hon. Assistant Librarian.

Hon. Editors

1911-12	G. E. J. Crallan, M.A., M.B., M.R.C.S.
1912-20	Hubert Painter, B.Sc., F.C.S.
1920-25	F. B. Taylor, B.A.
1925-	J. R. White, M.A.

Hon. Curators

1917 Jan.-July 1921	W. G. Wallace.
1921-Dec. 1922	No Curator.
1923 Jan.-Nov.	Rev. C. O. S. Hatton, B.A., F.L.S., and Howard Lacey, B.A.
1923 Dec.-	Rev. C. O. S. Hatton, B.A., F.L.S.

Chairmen of Sections.

Antiquarian

1904-7	A. W. Thomas, M.D., M.R.C.S.

Archæological and Historical

1907-8	A. W. Thomas, M.D., M.R.C.S.
1908-Feb. 14	G. Brownen, F.C.S.
1914 May-Nov.	Rev. Canon T. E. Usherwood, M.A.
1914 Dec.-24	Rev. H. Shaen Solly, M.A.
1924-	Col. J. R. Dodd, M.D., F.R.C.S.

Deputy Chairman

1922-24	Col. J. R. Dodd, M.D., F.R.C.S.

Astronomical

1920-24	Col. E. E. Markwick, C.B., C.B.E., F.R.A.S.

Mathematical

1921-22	W. H. Scott, M.A
1922-24	B. M. Peek, M.A., F.R.A.S.

Astronomical and Mathematical

1924-	B. M. Peek, M.A., F.R.A.S.

Botanical

1904-5	Rev. E. F. Linton, M.A., F.L.S.
1905-7	J. F. Rayner, F.R.H.S.
1907-May 18	Miss C. Agnes Rooper.
1918-22	Rev. C. O. S. Hatton, B.A., F.L.S.
1922-	Howard Lacey, B.A.

Entomological

1914-15	R. Beck, F.E.S.
1915-Dec. 19	F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.
1920 Jan.-	J. Neale, B.A.

Geographical

1908-10	J. E. Liddiard, F.R.G.S.
1910-11	A. Scott, B.A.
1911-16	G. de Castro, M.R.C.S.
1916-	Claude Lyon.

Geological

1904-5	Rev. G. D. Shenton, B.A.
1905-6	The Marquis de Trevelec.
1906-14	W. T. Ord, F.G.S.
1914-17	W. Munn Rankin, M.SC., B.SC.
1917-18	H. Kidner, F.G.S.
1918-20	W. Munn Rankin, M.SC., B.SC.
1920-23	W. J. Woodhouse, A.C.P., M.I.H.
1923-	Henry Bury, M.A., F.L.S., F.G.S.

Photographic

1905-8	Councillor R. Y. Banks.
1908-10	C J. Hankinson, J.P.
1910-12	E. W. Barlow, F.R.A.S.
1912-13	G. Brumell, A.R.I.B.A.
1913-14	No Chairman.
1914-16	R. Y. Banks.

Photographic and Record

1916-25	R. Y. Banks.
1925-	W. Dieselhorst, A.M.I.C.E.

Physical

1904-	Hubert Painter, B.SC., F.C.S.

Zoological

1904-8	G. E. J. Crallan, M.A., M.B., M.R.C.S.
1908-10	A. W. Thomas, M.D., M.R.C.S.
1913-14	W. Munn Rankin, M.SC., B.SC.
1922–	F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.

Microscopical

1909 Mar.-10	J. R. L. Dixon, M.R.C.S., L.R.C.P.
1913-14	H. B. Wells, F.R.M.S.
1922—	F. B. Taylor, B.A.

Zoological and Microscopical

1910-11	H. B. Wells, F.R.M.S. A. W. Thomas, M.D., M.R.C.S.
1911 Mar.-12	G. E. J. Crallan, M.A., M.B., M.R.C.S.
1911-13	H. B. Wells, F.R.M.S.
1914-16	T. B. Goodall, F.R.C.V.S., F.L.S.
1916-22	F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.

Elected and co-opted Members of Council.

Title changed from Committee in 1910.

Many of these also had seats on the Council ex-officio either before or after their election or co-option. Their names are marked*

1905-7	Atkins, Dr. F.
1906-7—1908-	*Backhouse, H., F.R.H.S.
1914-15	*Banks, R. Y.
1905-6	Bax, P. B. Ironside.
1904	Bond, Dr. Eleanor.
1919-20	Boul, Mrs.
1904-8	*Brownen, G., F.C.S.
1906-8	*Brumell, G., A.R.I.B.A.
1906-8	Buckland, Dr. Frank.
1921-22	Cardew, R. K., B.A.
1909-11	Chandler, S. Whitty, B.A.
1905-6	Clements, Lt.-Col. W. G.
1904	Clift, Dr.
1921-	Curme, Mrs.
1905-10	Curtis, W. Parkinson, F.E.S.
1923-	*Dodd, Col. J. R., M.D., F.R.C.S.
1914-16	Druitt, J., J.P.
1916-17	Dyer, J. Herbert.
1919-	*Ellis, H. J.
1910-	French, J. M.
1914-17	Furlong, R. O'B., C.B., M.A.
1919-Aug. 21	*George, A. D.
1904	Giles, Dr.
1904-6	*Goodall, T. B., F.R.C.V.S., F.L.S.
1918-20	Gosse, W., M.D., D.P.H.
1921-23	Gray, Arthur.
1910-15	Hamilton, G. G., M.B., F.R.C.S.
1916-18 — 1922-23	Hatton, Rev. C. O. S., B.A., F.L.S.
1911-16	Hill, S. McCalmont, D.C.L.
1916-19	Jeffery, T. J. P.
1906-10 — 1911-18	*Le Jeune, H.
1914-16	*Lyon, Claude.
1907-8	*Markwick, Col. E. E., C.B., C.B.E., F.R.A.S.
1907-8	Maude, W. C., J.P.
1910-16	*Morris, Sir Daniel, K.C.M.G., J.P., M.A., D.SC., LL.D., F.L.S.
1910-11	*Michell, Theo., M.I.C.E.
1916-19	*Neale, Joseph, B.A.
1905-6	*Ord, W. T., F.G.S.
1904	Parish, Miss
1915-16	*Penrose, F. G., M.D., F.R.C.P., F.Z.S., M.B.O.U.
1917-18	*Rankin, W. Munn, M.SC., B.SC.
1904	Reid, C. J.
1919-	Rooke, Miss S. G.
1918-19	Rothwell, Mrs.
1908-9	Scott, A., B.A.
1908-	*Scott, J. H., M.E., M.I.M.C.E
1904-	Sherring, R. Vowell, F.L.S.
1920-	Simpson, Rev. E. J. Douglas, M.A.
1916-	Smythe, J. H. Ralph, J.P.
1923-	*Spencer, J. F.
1905-10	Stubbs, G. M.
1918-20	*Taylor, F. B., B.A.
1921-23	*Wallace, W. G.
1907-10	*Wells, H. B., F.R.M.S.
1906-7 — 1916-20 1923-	*Woodhouse, W. J., A.C.P., M.I.H.

Various Committees

Chairman: Rev. C. O. S. Hatton, B.A., F.L.S.

1915 Dec.- Oct. 1919	General Policy of the Society.
1919 Nov.- Feb. 1920	Housing.
1920 Feb.- Oct. 1922	Housing and Finance
1922- ...	Finance and General Purposes.

Library Committee

Chairmen

1918 Mar.- Oct. 1918	G. G. Grace, B.SC., A.R.C.SC.
1918 Nov.- Oct. 1919	Hubert Painter, B.SC., F.C.S.
1919 Nov.- ...	Rev. C. O. S. Hatton, B.A., F.L.S.

Museum Committee

Chairmen

1917-1921 ...	W. G. Wallace.
1921- ...	Rev. C. O. S. Hatton, B.A., F.L.S.

Hon. Auditors.

1906-9	H. Sutton and K. H. Mundell.
1909-14	H. Sutton and E. Bicker.
1914-15	E. Bicker and H. Backhouse, F.R.H.S.
1915-17	E. Bicker and E. W. Barlow, F.R.A.S.
1917-	E. Bicker and C. H. Blackett.

Committees for the current Year 1925-26.

Finance and General Purposes

Rev. C. O. S. Hatton, B.A., F.L.S. (Chairman)
J. H. Ralph Smythe, J.P.
Sir Daniel Morris, K.C.M.G., J.P.
H. Backhouse, F.R.H.S.
The Hon. Treasurer (G. Brumell, A.R.I.B.A.)
J. M. French
The Hon. Secretary (R. A. de Paiva)

Library

Rev. C. O. S. Hatton, B.A., F.L.S. (Chairman)
J. H. Ralph Smythe, J.P.
F. G. Penrose, M.D., F.R.C.P. F.Z.S., M.B.O.U.
H. Backhouse, F.R.H.S.
G. E. J. Crallan, M.A., M.B., M.R.C.S.
Claude Lyon (Hon. Librarian)
Miss A. G. Veale

Museum

The Hon. Curator (Chairman) (Rev. C. O. S. Hatton, B.A., F.L.S.)
Sir Daniel Morris, K.C.M.G., J.P., F.L.S.
Chairman of Archæological Section (Col. J. R. Dodd, M.D., F.R.C.S.)
Chairman of Botanical Section (Howard Lacey, B.A.)
Chairman of Geological Section (Henry Bury, M.A., F.L.S., F.G.S.)
Chairman of Zoological Section (F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.)

Editorial

The Hon. Editor (Chairman) (J. R. White, M.A.)
The Hon. Treasurer (G. Brumell, A.R.I.B.A.)
The Hon. Secretary (R. A. de Paiva)
G. E. J. Crallan, M.A., M.B., M.R.C.S.
Henry Bury, M.A., F.L.S., F.G.S.

Garden

Sir Daniel Morris, K.C.M.G., J.P., F.L.S.
Rev. C. O. S. Hatton, B.A., F.L.S.
H. Backhouse, F.R.H.S.

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